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UNIVERSITY OF WYOMING COOPERATIVE RESEARCH REPORT
TO THE BUREAU OF LAND MANAGEMENT

ANNUAL PROGRESS REPORT
1980 RESULTS

VOLUME II
PRECIPITATION, PRODUCTIVITY, AND PRODUCTION SECTION

PHENOLOGY AND PRODUCTION STUDIES ON
SEMIARID SHRUB TYPES

SUBMITTED BY WYOMING AGRICULTURAL EXPERIMENT STATION

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PHENOLOGY AND PRODUCTION STUDIES ON SEMI-ARID SHRUB TYPES[1]

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ANNUAL PROGRESS REPORT - 1980 RESULTS

VOLUME II:

PRECIPITATION, PRODUCTIVITY AND PRODUCTION SECTION

BY

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D. R. Rodgers and N. E. Hargis[2]

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[1] Published with the approval of the Director, Wyoming Agricultural Experiment Station, as Scientific Report No. 1173.

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SECTION III

PRECIPITATION PATTERN STUDY

1980

Introduction

During 1960 over 70 gauges were installed at 6 to 12 mile intervals throughout the Big Horn and Wind River Basins. Since that time approximately 20 gauges in the Big Horn Basin have been discontinued but some additional 100 gauges have been installed at various exclosures and study sites throughout western Wyoming. These gauges are metal cans, 12" in height and approximately 2.79" in diameter. Precipitation is read to inches of rainfall by measuring the water in ml. The gauge diameter allows one hundred ml of water to be equal to 1" of precipitation. The gauges are read on the same four dates each year -- April 15, July 1, September 1 and October 15. In the Big Horn Basin, at the urging of BLM personnel, precipitation recording procedures have been increased to eight recordings during a year on the dates March 1, April 15, June 1, July 1, August 1, September 1, October 1 and December 1.

For this report data are shown both in the summarization of four data sets during the year and also with data observed at more frequent intervals. Poor road conditions have been responsible for data omissions from the March and November dates in some instances. Personnel of the Worland, Rawlins, Casper, and Rock Springs Districts of the Bureau of Land Management cooperate with the University in reading the instruments.

In the Big Horn Basin the Bureau has acquired small commercial gauges that have been established at a number of new locations. Some gauges are also read by personnel of the Soil Conservation Service and the Wyoming Game and Fish Commission.

The U.S. Weather Bureau and the U.S. Geological Survey precipitation data are used to provide additional information from other locations. This cooperative effort provides an effective network for future evaluation of precipitation patterns.

Precipitation data for 1980 from the University and BLM gauges are presented in Table I; those from the U.S. Weather Bureau stations are presented in Table II. A summary of precipitation by county and region is presented in Table III. Table IV is a compilation of precipitation data from all U.W. and BLM gauges in the Big Horn Basin. Table V shows seasonal distribution of precipitation for various regional units over which the U.W. gauges are distributed as well as those of the U.S.D.C. Weather Service stations. In Table VI data from 19 gauges located at Big Horn Basin perimeter locations, and representing only those read by UW personnel, are segregated by vegetation types - juniper woodlands, sagebrush grasslands, and desert shrublands.

1980 Results

In Table I are recorded the 1980 precipitation data from 185 gauges read by University of Wyoming and Bureau of Land Management personnel. In Table II the data of 57 U.S. Weather Service stations are presented in the same four time periods as those of Table I. Long term averages are presented in Table I but those of the U.S. Weather Bureau represent 30 year standard normals in most cases.

Precipitation for 1980 in the Big Horn Basin was slightly greater than the long term averages. Of the 93 UW-BLM gauges, 55 exhibited greater, and

38 less, than normal. The BLM installed 15 new gauges in the Big Horn Basin during the previous year. The 19 gauges in Hot Springs County were slightly below average while the Big Horn Basin counties to the north and west were increasingly above average (Table III). Fremont and especially Natrona Counties were below average with the former receiving 92% of normal and the latter only 73%. The latter was influenced by very low precipitation during the fall period. Weather Bureau stations exhibited similar relations. In Carbon County precipitation at the UW-BLM gauges was 105% of normal while the counties of south central and western Wyoming received about 20% greater amounts of moisture than normal (Table III).

Table IV is a listing of all gauges in the Big Horn Basin with the additional recording values of precipitation for each of the seven periods.

Seasonal distribution of precipitation for the Big Horn Basin was near normal with somewhat greater than normal summer and fall amounts of moisture (Table V). In Fremont county the central basin stations were below average and received much less winter precipitation than at the upland and mountain stations (Tables I, II, III, V). Other areas of the state exhibited data with relatively high moisture percentages during winter and consequently relatively low precentages during the spring (Table V).

At the 19 foothill sites around the perimeter of the Big Horn Basin precipitation for 1980 was 106% of normal (Table VI). The below average data for the sites in the Juniper woodlands (-0.28") was caused by the very low moisture values received at the Kane exclosures (3.25" and 2.39" below average). Otherwise most sites received above normal precipitation.

Table I. Precipitation data for 1980 from University of Wyoming gauges for the periods October 15-April 15 (winter), April 15-July 1 (spring), July 1-September (summer) and September 1-October 15 (fall).

Rain Gauge No.	Range Gauge Name	Winter Apr. 15 1980	Spring July 1 1980	Summer Sept. 1 1980	Fall Oct. 15 1980	Total 1980	Long Term Average	No. of Years
	Big Horn County							
176	Basin Flats Exc.	1.94	3.44	1.08	1.40	7.86	6.92	14
245	Beaver Creek	1.65	3.30	2.25	1.00	8.20	8.20	1
123	Big Flat Exc.	1.93	3.39	1.27	1.28	7.87	6.19	13
219	Blue Ridge WRA 3	1.25	3.24	1.24	1.20	6.93	6.60	2
220	Cedar Mtn. WRA 4	2.55	3.75	1.67	1.15	9.12	9.18	2
208	Dead Indian BLM 8	1.38	4.19	1.59	1.10	8.26	6.37	3
212a	Dorsey Creek BLM 12	1.71	3.85	1.21	1.30	8.07	7.01	3
212b	Dorsey Creek UW	1.34	3.61	.76	1.17	6.88	6.45	3
243	Dry Creek	1.55	3.70	.90	.90	7.05	7.05	1
211	Elk Creek BLM 11	1.10	3.68	1.60	1.00	7.38	6.25	3
194	Emblem Bench	.82	2.45	1.25	1.60	6.12	5.00	3
24	Halogeton Exc. #1	1.35	3.54	1.15	1.32	7.36	5.44	21
167	Halogeton Exc. #2	1.43	3.71	1.18	1.41	7.73	5.97	9
168	Halogeton Exc. #3	1.95	3.22	1.03	1.24	7.44	5.56	9
12	Horse Creek Exc.	3.83	3.38	2.32	1.93	11.46	11.05	21
113	Horse Haven Exc.	2.36	3.35	1.10	1.31	8.12	6.81	14
21	Kane Deer Exc.	3.73	2.98	1.49	1.10	9.30	11.79	16
149	Kane GRI Exc.	3.68	2.86	1.42	1.08	9.04	12.29	13
246	Kane Exc. BLM	1.65	2.90	1.60	1.10	7.25	7.25	1
116	Kane Seed Exc.	2.10	3.34	1.37	.65	7.46	6.89	13
242	Little Dry Creek	1.40	3.70	1.55	1.75	8.40	8.40	1
224	Luman Creek WRA 5	3.25	4.65	3.20	1.65	12.75	11.49	2
148	Medicine Lodge GRI Exc.	5.70	5.30	1.73	1.97	14.70	14.19	13
241	North Cowley	1.95	3.40	1.00	1.35	7.70	7.70	1
244	North Shell Allotment	1.85	3.10	1.10	1.20	7.25	7.25	1
175	Potato Ridge Exc. (EULA)	3.25	3.58	1.50	1.87	10.20	8.07	13
225	Potato Ridge Exc. WRA 1	1.01	3.78	1.65	1.65	8.09	7.14	2
23	Sheep Springs Exc.	4.67	6.05	1.40	2.52	14.64	13.83	20
227	Sheep Springs Exc. WRA 2	2.20	5.80	1.47	2.50	11.97	11.44	2
174	Sheldon Gulch Exc. (ATGA)	3.26	3.66	1.50	1.82	10.24	7.68	13
	Park County							
207	Beaver Slide BLM 7	5.78	4.82	1.18	.99	12.77	12.24	3
147	Big Sage Exc.	2.37	4.42	.71	2.29	9.79	8.14	12
235	Big Sand Coulee	1.00	5.05	1.85	3.20	11.10	11.10	1
146	Big Sky Exc.	2.59	4.56	.85	2.36	10.36	8.75	12
100	Buffalo Basin Exc.	3.16	4.62	2.34	1.51	11.63	10.14	14
193	Canyon	2.86	4.10	.67	2.86	10.49	9.04	8
232	Coal Creek	2.10	3.30	1.48	3.60	10.48	10.48	1
233	Cottonwood Creek	1.25	3.67	1.60	2.00	8.52	8.52	1
240	Garland Oil Field	1.32	2.68	1.44	1.20	6.64	6.64	1
145	Hilltop Springs	2.76	6.58	.69	3.39	13.42	14.70	10
184	Little Dry Creek	2.71	4.50	1.59	2.02	10.49	8.42	5
234	Little Sand Coulee	1.25	4.63	2.43	1.75	10.06	10.06	1
237	Oregon Basin	3.30	4.35	1.15	2.25	11.05	11.05	1
236	Pole Cat Bench	1.40	3.45	1.55	2.30	8.70	8.70	1
231	Short Fk. Meeteetse Cr.	3.15	6.35	2.50	5.00	17.00	17.00	1
192	Skyline	3.25	5.45	1.13	2.48	12.31	8.13	7
206	Squaw Teats BLM 6	1.65	4.89	1.53	1.04	9.11	7.68	3
191	State Line	.41	4.27	1.04	1.17			
238	YU Bench							
	Washakie County							
1	Ant Hill Worland Exc.	.73	2.94	1.04	.97	5.68	6.42	21
150	Big Trails GRI Exc.	5.64	4.22	1.32	.99	12.22	13.02	13
41	Bud Kimball Exc.	2.85	1.95	1.40	.80	6.30	9.26	19
7	Buffalo Cr. Exc.	3.00	3.15	1.35	.42	7.92	10.35	18
17	Burnt Wagon Exc.	.76	4.04	1.51	.85	7.16	6.11	19

Table I. (Continued)

Rain Gauge No.	Rain Gauge Name	Winter Apr. 15 1980	Spring July 1 1980	Summer Sept. 1 1980	Fall Oct. 15 1980	Total 1980	Long Term Average	No. of Years
	Washakie County (cont'd)							
179	Chalk Exc.	.73	3.47	2.16	1.00	7.36	6.27	20
222	Cornell Gulch WRA 10	1.55	3.70	1.41	.38	7.04	6.84	2
221	Cottonwood Oil Field WRA 6	.95	2.95	1.13	.80	5.83	5.58	2
8	Demer Exc.	3.75	1.75	1.85	.95	8.30	8.47	21
4	Dutch Nick Flat Exc.	1.23	4.16	1.68	1.20	8.22	7.12	20
199	East Ridge Exc. (see RG 206)							
15	15 Mile Pastures=RG 179	.73	3.47	2.16	1.00	7.36	6.27	20
177	Hawk Exc.	1.07	3.92	1.40	.79	7.18	6.11	19
166	Mills Burn Seed	5.70	4.45	1.69	1.06	12.90	12.52	10
185	Rice Burn Exc.	6.24	4.55	1.77	1.75	14.31	13.77	7
180	Sand Creek Exc.	1.88	2.92	.89	.91	6.60	6.68	14
226	Sand Draw WRA 8	2.80	2.28	2.24	.36	7.68	6.92	2
209	Schuster Draw BLM 9	1.50	3.15	1.80	.80	7.25	7.25	3
36	Smilo Exc.	3.32	2.08	1.68	.73	7.81	9.07	20
210	So. Fk. 15 Mile Cr. BLM 10	1.98	3.75	1.79	1.16	8.68	8.32	3
203	Spring Creek BLM 3	1.04	3.30	1.11	.95	6.40	6.25	3
228	Spring Creek Rd. WRA 7	3.50	4.30	2.02	.84	10.66	9.63	2
181	Tolman Ridge Exc.	1.85	3.08	1.03	.86	6.82	6.39	14
39	Two Mile Hill Exc.	3.85	2.30	1.56	.89	8.60	9.47	20
13	West Pasture Exc.	.78	4.70	.99	.86	7.33	5.71	19
178	Willwood Exc.	.87	3.53	2.23	.99	7.62	6.16	20
115	Worland Cattle Co. Exc.	3.15	2.00	2.10	1.58	8.83	8.25	13
	Hot Springs County							
117	Big Bend Exc.	4.20	2.35	1.70	.35	8.60	10.31	13
76	Cochran Exc.	3.45	2.50	1.75	.50	8.20	10.23	20
77	Kirby Creek Exc.	4.05	2.70	2.18	.49	9.42	9.66	18
223	Kirby Creek WRA 9	2.30	3.13	1.48	.39	7.30	8.36	2
111	Lower Enos Cr. Exc.	3.28	7.97	1.23	1.19	13.67	10.92	13
205a	Murphy Draw BLM 5	.83	5.44	1.59	1.40	9.26	7.47	3
205b	Murphy Draw UW	1.16	6.16	1.34	1.15	9.81	7.69	3
183	North Butte Thermop. Relic	3.43	2.57	1.81	.38	8.19	10.64	9
215	O.B. Reservoir BLM 15			3.65	.80			
202a	Prospect Creek BLM 2	1.26	6.19	3.50	1.10	12.05	9.69	3
202b	Prospect Creek UW							
204a	Grass Cr. BLM 4 (Rankin)	1.69	5.17	1.96	1.28	10.10	9.12	3
204b	Rankin Basin Exc. UW	2.65	5.24	1.68	1.48	12.05	10.07	3
204c	Rankin Basin Exc. UWL	2.41	5.01	1.56	1.36	10.34	10.59	3
182	Round Top Mtn. Relic	E3.40	E2.66	1.70	.48	E8.24	11.59	9
75	Sand Gulch Exc.	3.05	2.75	2.10	.56	8.46	8.90	9
214	Twentyone Creek BLM 14	2.14	4.86	2.44	1.05	10.49	11.89	3
22	Upper Enos Creek Exc.	4.47	7.50	E1.65	1.71	15.33	14.99	12
213	Wagonhound BLM 13	1.52	4.53	2.72	.72	9.49	8.64	3
201	Waugh Dome BLM 1	1.23	4.21	1.62	.60	7.66	9.20	3
	Fremont County							
52	Alkali Flat	E1.50	2.43	.59	.42	.42	4.94	20
89	Birdsage Ranch	1.45	3.46	.82	.43	6.16	7.80	17
10	Boysen Res. Exc.	1.05	2.98	.59	.00	4.62	5.00	21
85	Bridger Cr. Ranch	7.70	3.68	1.05	2.12	14.55	11.24	18
49	Canyon Creek	3.30	2.01	1.16	.34	6.81	8.46	19
59	Carter Divide Exc.	2.65	2.66	.72	.67	6.70	8.27	19
88	Comet Mine	3.88	3.51	1.23	1.67	10.29	11.75	18
60	Dishpan Butte #1 Exc. (Rim)	5.48	3.21	.39	1.02	10.10	11.25	19
61	Dishpan Butte #2 Exc.	2.40	2.34	.52	1.00	6.26	9.33	19
229	Divide Study Plot #3 Exc.	2.78	2.43	.48	E1.00	E6.69	7.14	2
86	Dry Creek	1.18	E3.00	4.78	.75	9.71	6.96	20
58	Empty Cartridge Exc.	3.10	2.58	.95	.86	7.49	8.10	15
55	Fraser Seed Plot	3.42	2.78	1.73	.52	8.45	8.88	18

Table I. (Continued)

Rain Gauge No.	Rain Gauge Name	Winter Apr 15 1980	Spring July 1 1980	Summer Sept 1 1980	Fall Oct 15 1980	Total 1980	Long Term Average	No. of Years
67	Frenchie #9 (Madden)	E1.60	2.28	.69	.60	E5.17	9.20	19
48	Fullen Seed Plot	2.96	3.28	.35	.68	7.27	8.09	19
46	Gibbs Butte	1.56	E2.30	.35	.69	E4.90	6.75	20
6	Granite Mtn. Exc.	S3.00	S3.08	.52	1.00	7.60	8.66	18
62	Hall Creek Divide Exc.	5.56	4.47	.45	1.08	11.56	11.73	19
87	Hoodoo Creek	1.76	3.18	.56	.62	6.12	6.47	20
64	Hudson	2.65	4.90	.48	.78	8.81	9.31	19
68	Johnson	.88	4.74	1.12	.53	7.27	7.11	18
5	Lander Ant Exc.	2.75	2.92	.73	.75	7.15	8.50	20
63	Little Popo Agie	4.24	3.48	.37	1.44	9.53	11.15	19
56	Logan #1 Exc.	2.70	2.15	.97	.93	6.75	8.59	19
57	Logan #2 Exc.	3.06	2.75	1.66	.82	8.29	8.26	18
16	Lower Gov't Draw Exc. #2	3.96	3.42	.37	.92	8.67	10.28	20
81	Mack Ranch	2.78	2.83	.68	1.63	7.92	8.77	16
14	McGraw Flat Exc.	6.79	E4.00	.45	.93	E12.17	9.58	20
47	Muskrat Creek	E2.90	3.15	.55	.72	E7.32	7.11	18
50	Muskrat #5 Exc.	2.40	2.36	.93	.92	6.61	8.44	19
51	Poison Creek	2.66	4.74	.62	.63	8.65	7.85	18
80	Poison Draw	1.05	2.21	.53	.57	4.36	7.02	20
65	Sand Draw (Pan Am)	2.81	3.12	.71	.84	7.48	8.85	17
169	Shoshoni Ant #2 Exc.	3.55	2.98	.46	.83	7.82	8.13	9
170	Shoshoni Ant #4 Exc.	3.28	3.50	.65	E.75	8.18	7.86	9
158	Shoshoni Ant #7 Exc.	3.16	3.39	.56	.78	7.89	8.20	10
172	Shoshoni Ant #8 Exc.	3.26	3.78	.50	.75	8.29	8.06	9
171	Shoshoni Ant #9 Exc.	3.26	3.56	.56	.79	8.17	8.13	9
173	Shoshoni Ant #11 Exc.	2.86	4.08	.55	.85	8.34	8.05	9
11	Sweetwater Exc.	3.18	2.03	.90	1.75	7.86	8.88	20
9	Upper Gov't Draw Exc. #1	3.47	4.09	.51	.90	8.97	9.25	21
	Natrona County							
143	Arminto Cxc. =RG 110	1.40	1.43	1.50	.43	4.76	8.62	13
109	Bolton Creek Exc.	E5.00	2.69	.89	.19	E8.77	8.96	12
141	Donlin Exc.	1.28	1.97	.24	.13	3.62	7.12	13
110	E K Exc. =RG 143	1.40	1.43	1.50	.43	4.76	8.62	13
142	Merino Exc.	1.93	1.74	1.13	.00	4.80	8.94	13
108	Mud Springs Exc.	5.73	2.31	1.67	.39	10.10	10.94	13
107	Owl Draw Exc.	E4.50	2.10	1.35	.18	8.13	E9.64	14
144	Poison Spider Exc.	3.51	2.02	1.84	.02	7.39	9.07	13
106	Stinking Creek Exc.	3.19	2.38	1.16	.16	6.89	9.24	14
	Carbon County							
186	Flat Top	3.18	3.86	1.80	1.02	9.86	8.72	8
27	Little Robber #5 Exc.	3.73	1.94	1.14	.72	7.53	9.53	18
128	Oppenheimer Exc. #1	4.24	4.66	.79	.62	10.31	9.65	13
124	Poison Butte Exc. #1 ARTR	4.56	4.38	1.17	.66	10.77	10.67	13
125	Poison Butte Exc. #2 JUOS	5.52	4.84	1.06	.66	12.08	11.03	13
139	Powder Rim A Exc. #1*	3.57	5.82	1.27	.46	11.12	9.30	13
136	Powder Rim B Exc. #1*	3.71	4.41	1.43	.37	9.92	8.61	13
137	Powder Rim B Exc. #2*	4.82	4.43	1.29	.37	10.91	10.30	13
130	Powder Rim C Exc. #1	3.54	4.16	1.33	.60	9.63	8.39	13
131	Powder Rim D Exc. #1*	3.09	4.20	1.45	.28	9.02	7.65	13
26	Red Wash #1 Exc.	2.89	2.61	.96	.65	7.11	7.87	19
28	Red Wash #2 Exc.*	2.68	2.67	.89	.85	7.09	7.02	19
25	Red Wash #3 Exc.	2.83	3.03	.75	.47	7.08	7.88	19
	Sweetwater County							
217	Big Hollow Bench Exc.	4.95	1.73	1.42	1.35	9.45	8.36	3
20	Black Mountain Exc.	3.27	2.92	1.48	1.50	9.17	7.49	18
30	Boars Tusk Exc.	3.99	2.14	1.01	1.65	8.79	7.74	14
18	Cedar Mountain Exc.	3.54	E3.00	.98	E1.70	E9.22	8.24	18
102	Chandler-Simpson Well	E4.00	3.45	1.66	E1.20	E10.31	7.63	11
197	Costello Creek	4.75	2.00	1.30	2.30	10.35	10.61	9

Table I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter Apr 15 1980	Spring July 1 1980	Summer Sept 1 1980	Fall Oct 15 1980	Total 1980	Long Term Average	No. of Years
103	Daley Hay Corral	3.55	E3.00	1.22	1.43	E9.20	7.29	14
2	Farson Exc.	3.58	2.94	E1.00	.98	E8.50	6.60	15
104	J.O. Headquarters	3.61	4.66	1.60	1.48	11.35	7.85	15
105	Len Hay Corral	3.24	2.79	.92	1.10	8.05	6.93	14
218	North Rim Exc.	6.30	1.43	1.72	1.20	10.65	8.14	3
195	Parting of the Way Exc.	3.73	3.43	1.03	1.85	10.04	7.33	3
19	Radio Tower Exc.	3.17	2.80	.43	1.73	8.13	7.44	20
196	Red Creek Ranch	7.90	3.35	1.00	2.40	14.65	12.69	9
101	Ten Mile Ridge	2.65	3.14	.98	1.08	7.85	5.92	12
157	Bar X**	3.56	2.38	E1.10	1.80	E8.84	6.72	11
	Sublette County							
187	Antelope (Mesa) Exc.	2.80	3.20	1.12	1.10	8.22	7.59	6
190	North Alkali	2.20	2.20	1.43	.80	6.63	5.64	6
188	North Mesa	3.10	3.40	2.10	1.30	9.90	7.61	3
189	Sand Draw Pasture	2.50	E3.00	.94	.60	E7.04	5.51	6
	Uinta County							
31	Cumberland #1 Exc.	4.67	2.68	1.21	1.70	10.26	7.91	15
34	Cumberland #4 Exc.	3.99	2.38	.99	1.65	9.01	8.24	15
	Lincoln County (m = 7)							
198	Boulder Ridge Exc. BQ #1	6.50	E4.00	.97	E.95	E12.42	10.64	4
32	Cumberland #2 Exc.	7.92	2.63	1.10	1.98	13.63	9.39	16
33	Cumberland #3 Exc.	9.87	1.95	1.10	2.40	15.32	11.07	16
35	Elk Mountain Pit	S4.00	S1.75	S1.91	.95	8.61	8.95	15
230	Huff Creek Exc.	6.50	4.10	51.50	SE3.47	E15.57	13.89	2
200	Mahogany Ridge Exc. BQ #3	6.00	E.4.25	1.29	.84	E12.38	10.90	4
216	Rock Creek Ridge Exc. BQ#2	6.49	4.30	1.05	.97	12.81	9.59	3

S = Precipitation of multiple periods separated by estimate

E = Estimate

**Geographically in Fremont County but physiographically in Sweetwater County Region

TABLE II. Precipitation data from selected U.S. Weather Bureau Stations for the period October 16, 1979 through October 15, 1980.[1]

Section Name	Winter April 15 1980	Spring July 1 1980	Summer Sept. 1 1980	Fall Oct. 15 1980	Season Total 1980	Long Term Average	Years of Record
Big Horn Drainage							
Anchor Dam							
Basin	1.70	3.71	1.51	1.74	8.66	+ 6.47	73
Black Mountain	4.38	3.56	2.26	.81	11.01	-11.17	18
Buffalo Bill Dam	4.00	3.41	1.65	3.05	12.11		
Cody	3.14	4.05	2.03	2.22	11.44	+ 9.63	70
Cody 12 SE	E2.05	5.24	E1.51	E3.05	11.85	-12.55	18
Cody 21 SW	5.17	3.41	2.29	3.99	14.86		
Deaver	.60	2.78	1.28	.53	5.19	- 5.58	62
Emblem	2.47	1.50	.88	2.17	7.02	+ 5.58	34
Grass Creek	3.01	5.64	1.87	2.12	12.64	+11.68	28
Greybull	1.88	4.06	1.55	1.99	9.48	+ 7.49	29
Heart Mountain	E2.09	5.57	2.24	1.66	11.56	+ 7.90	32
Lovell	1.16	3.55	1.44	.93	7.08	+ 6.95	68
Meeteetse*	(E3.60)						
Powell	1.28	3.93	1.55	.95	7.71	+ 6.09	71
Rairden 2 WSW	2.05	3.06	2.00	1.44	8.55	+7.01	29
Sunshine 2 ENE	E4.55	7.15	2.73	2.85	17.28	+14.49	18
Tensleep 4 NE	E3.26	3.99	1.80	1.12	10.17	-12.95	17
Tensleep 16 SSE	3.37	3.25	1.61	1.14	9.37	-13.06	22
Thermopolis 2	5.13	3.41	1.95	1.50	11.99	+11.17	17
Thermopolis 25 WNW	3.13	6.47	E3.41	2.48	15.49	+11.48	23
Worland	3.17	2.48	2.12	1.24	9.01	+ 7.40	67
Worland FAA AP	2.73	2.73	1.87	1.48	8.81	+ 5.57	20
Averages (n = 21)	2.87	3.95	1.88	1.83	10.53	9.17	
Seasonal Distr.	27.3%	37.5%	17.8%	17.4%	100.0%		
Wind River Drainage							
Central Basin							
Boysen Dam	3.32	2.62	1.70	1.16	8.80	+ 7.88	+34
Burris	2.55	5.99	1.44	.84	10.82		
Diversion Dam	2.32	4.14	.93	.89	8.28		
Ft. Washakie 1 SE	E2.15	E3.60	E1.55	E.90	E8.20	-12.30	-72
Gas Hills 4 E	E3.10	1.59	.78	.43	5.90	- 9.48	-18
Lost Cabin	E1.41	3.46	.80	.49	6.16	- 6.52	-19
Parvillion	1.24	3.57	.35	.85	6.01	- 8.82	-56
Riverton	2.04	4.80	.74	.91	8.49	- 8.56	-61
Riverton 2	E2.15	E4.25	E.70	E1.00	E8.10		
Shoshoni	1.72	3.49	E.61	.69	6.51	+ 5.41	+40
Averages (n = 10)	2.20	3.75	.96	.82	7.73	8.42	
Seasonal Distr.	28.5%	48.5%	12.4%	10.6%	100.0%		

*Data from recording rain gauge

TABLE II. (Continued)

Section Name	Winter April 15 1980	Spring July 1 1980	Summer Sept. 1 1980	Fall Oct. 15 1980	Season Total 1980	Long Term Average	Years of Record
Uplands & Mountains							
Atlantic City Ore Mine	10.91	4.83	.89	1.73	18.36		
Jeffrey City	4.05	3.99	.85	.44	9.33		8
Lander WSO AP	5.81	4.36	.58	1.13	11.88	-13.84	-89
Muddy Gap	E4.80	2.84	1.24	.28	E9.16	-11.85	-31
Oregon Trail Crossing	E5.50	E4.20	E1.10	E12.25			
Sand Draw	E4.75	E2.85	E.60	E.95	9.15		
South Pass City	E10.00	E4.80	E.90	E1.70	17.40	+13.73	+32
Averages (n = 7)	6.54	3.98	.88	1.10	12.50	13.14	
Seasonal Distr.	52.3%	31.8%	7.1%	8.8%	100.0%		
Wind River Basin - North & South Combined							
Averages (n = 17)	3.99	3.84	.93	.93	9.69	9.80	
Season Distr.	41.2%	39.6%	9.6%	9.6%	100.0%		
Platte Drainage-Central and SE Wyoming							
Alcova 17 NW	E4.00	5.25	E1.88	.10	11.23		
Baggs	E	E	(2.37)	(3.26)			
Bates Creek 2	4.21	3.06	1.66	.48	9.41	_12.77	- 8
Casper 2 E	E4.00	E2.70	E1.40	.10	8.20	-13.37	-61
Casper WSO AP	4.48	2.99	1.50	.24	9.21	-11.22	-42
Pathfinder Dam	3.49	2.10	1.32	.40	7.31	- 9.51	-74
Powder River 1 E	E2.90	E3.00	E2.30	E.20	8.40		
Powder River 2 SW	E2.83	2.93	2.34	.20	8.30		
Rawlins FAA AP	6.59	2.48	1.69	2.32	13.08	+10.83	+41
Saratoga	5.78	1.85	1.75	1.57	10.95	+ 9.58	+61
Seminoe Dam	9.50	2.93	2.33	.88	15.64	+12.37	+42
Shirley Basin Station	1.72	2.23	1.88	.70	6.53		
Averages (n = 11)	4.50	2.87	1.82	.65	9.84	11.38	
Season Distr.	45.7%	29.2%	18.5%	6.6%	100.%		
Green River Drainage							
Big Piney	E5.99	2.90	1.21	.74	10.84	+ 6.11	43
Bitter Creek 4 E	E4.40	3.09	.61	.76	8.86		18
Church Buttes Gas	3.89	3.09	E.90	.40	8.28		25
Creston*	(E2.50)						
Evanston 1 E	7.36	1.05	.67	2.53	11.61	+10.98	80
Farson	E4.00	E5.11	E1.13	E.80	11.04	+ 7.61	57
Fontenell Dam	3.03	3.39	1.30	1.42	9.14	+ 7.39	18
Green River	E2.58	2.72	1.27	.17	6.74	- 8.54	74
Kemmerer 4 SW	E7.04	E3.90	E1.30	E.65	12.89	+ 9.53	47
LaBarge 4 WNW*	E3.50	7.60	1.20	.87	13.17	+11.23	18
Mud Springs	(E5.50)						
Pine Dale	4.37	3.77	2.29	1.41	11.84	+ 8.11	57
Rock Springs FAA AP	3.79	3.16	.89	.88	8.72	- 8.79	48
Sage 4 NNW	E7.00	4.60	1.68	1.62	14.90	+ 9.87	51
Wamsutter 1 N	E2.45	3.40	2.11	1.17	9.13	+ 6.11	40
Averages (n = 13)	4.57	3.68	1.27	1.03	10.55	8.57	
Seasonal Distr.	43.3%	34.9%	12.0%	9.8%	100.0%		

*Data from recording rain gauge

Table III. Precipitation summary by county and region for 1980 for U.W., BLM, and Weather Bureau Stations. Data in inches precipitation from Oct. 10, 1979 through Oct. 15, 1930.

County	No. of Gauges	Long Term Ave. Ppt.	Ppt." Total 1979	1979 Diff. from Average	Percent of Normal	Number of Gauges Above (+) or Below (-) Long Term Average +	−
Big Horn	30	8.18	8.83	+.65	108%	20	10
Park	18	9.84	10.68	+.84	108%	9	9
Washakie	26	8.01	8.18	+.17	102%	17	9
Hot Springs	19	10.04	9.97	-.07	99%	9	10
	93	8.83[1]	9.24[1]	.41[1]	105%	55	38
Fremont	41	8.56	7.85	-.71	92%	11	30
Natrona	9	9.02	6.58	-2.44	73%	0	9
Carbon	13	8.97	9.42	+.45	105%	10	3
Sweetwater	16	7.94	9.66	+1.72	122%	15	1
Sublette	4	6.59	7.95	+1.36	121%	4	0
Unita	2	8.08	9.64	+1.56	119%	2	0
Lincoln	7	10.63	12.96	+2.33	121%	6	1
	185					88	82
Weather Service Stations							
Big Horn Drainage	21*	9.48	10.53	+1.05	111%	14	5
Wind River Drainage							
North	7	8.42	7.73	-0.69	92%	2	5
South	3	13.14	12.50	-0.64	95%	1	2
Combined	10	9.80	9.69	-0.11	99%	3	7
Platte Drainage	11	11.38	9.84	-1.54	86%	3	4
Green River Drainage	15	8.57	10.55	+1.98	123%	9	2
	67						

*Long term averages and standard normals unavailable at some stations.

[1] Weighted average over all gauges and counties.

TABLE IV. Precipitation data for all U.W. and BLM gauges in the Big Horn Basin for the 1980 season.

Rain Gauge No.	Gauge Name	Apr 15 '80	Jun 1 '80	Jul 1 '80	Aug 1 '80	Sep 1 '80	Oct 15 '80	Nov 30 '80	1980 Total	Long Term Average	No. Years Record
1	Ant Hill Worland Exc.	.73	1.84	1.10	.11	.93	.97	NR	5.68	6.42	21
176	Basin Flats Exc.	1.94	2.14	1.30	.24	.84	1.40	NR	7.86	6.92	14
245	Beaver Creek (Taylor)	1.65	2.00	1.30	.55	1.70	1.00	NR	8.20	8.20	1
207	Beaver Slide BLM 7	5.78	3.45	1.37	.58	.60	.99	NR	12.77	12.24	3
117	Big Bend Exc.	3.55	NR	2.35	NR	1.70	.35	.65	8.60	10.31	13
123	Big Flat Exc.	1.93	2.25	1.14	.24	1.03	1.28	NR	7.87	6.19	13
147	Big Sage Exc.	2.37	NR	4.42	NR	.71	2.29	NR	9.79	8.14	12
235	Big Sand Coulee (Taylor)	1.00	3.75	1.30	.98	.87	3.20	NR	11.10	11.10	1
146	Big Sky Exc.	2.59	NR	4.56	NR	.85	2.36	NR	10.36	8.75	12
150	Big Trails GRI Exc.	5.64	3.25	.97	.15	1.22	.99	NR	12.22	13.02	13
219	Blue Ridge WRA 3	1.25	2.25	.99	.24	1.00	1.20	NR	6.93	6.60	2
41	Bud Kimball Exc.	2.10	NR	1.95	NR	1.40	.80	.75	7.00	9.30	19
100	Buffalo Basin Exc.	3.16	2.96	1.66	.92	1.42	1.51	NR	11.63	10.14	14
7	Buffalo Creek Exc.	2.30	NR	3.15	NR	1.35	.42	.70	7.92	10.35	18
17	Burnt Wagon Exc.	.76	2.65	1.39	.53	.98	.85	NR	7.16	6.11	19
193	Canyon	2.86	NR	4.10	NR	.67	2.86	NR	10.49	9.04	8
220	Cedar Mountain WRA 4	2.55	2.95	.80	.44	1.23	1.15	NR	9.12	9.18	2
179	Chalk Exc. =RG 15	.73	2.48	.99	.68	1.48	1.00	NR	7.36	6.27	20
232	Coal Creek (Taylor)	2.10	2.50	.80	.40	1.08	3.60	NR	10.48	10.48	1
76	Cochran Exc.	2.85	NR	2.50	NR	1.75	.50	.60	8.20	10.23	20
222	Cornell Gulch WRA 10	1.55	2.65	1.05	.16	1.25	.38	NR	7.04	6.84	2
233	Cottonwood Creek (Taylor)	1.25	2.75	.92	1.05	.55	2.00	NR	8.52	8.52	1
221	Cottonwood O.F. WRA 6	.95	1.95	1.00	.34	.79	.80	NR	5.83	5.58	2
208	Dead Indian BLM 8	1.38	2.49	1.70	1.17	.42	1.10	NR	8.26	6.37	3
8	Demer Exc.	2.95	NR	1.75	NR	1.85	.95	.80	8.30	8.47	21
212a	Dorsey Creek BLM 12	1.71	2.33	1.52	.63	.58	1.30	NR	8.07	7.01	3
212b	Dorsey Creek UW	1.34	2.35	1.26	.30	.46	1.17	NR	6.88	6.45	3
243	Dry Creek (Taylor)	1.55	2.50	1.20	.15	.75	.90	NR	7.05	7.05	1
4	Dutch Nick Flat Exc.	1.23	2.55	1.61	.58	1.05	1.20	NR	8.22	7.12	20
199	East Ridge Exc. (See RG 206)										
231	Egbert Draw BLM 16		INST	1.80	1.05	1.65	1.50	NR			
211	Elk Creek BLM 11	1.10	2.76	.92	.60	1.00	1.00	NR	7.38	6.25	3
194	Emblem Bench (Taylor)	.82	2.20	.25	.89	.36	1.60	NR	6.12	5.00	3

TABLE IV. Continued

Rain Gauge No.	Gauge Name	Apr 15 '80	Jun 1 '80	Jul 1 '80	Aug 1 '80	Sep 1 '80	Oct 15 '80	Nov 30 '80	1980 Total	Long Term Average	No. Years Record
15	15 Mile Study Pasture =179	.73	2.48	.99	.68	1.48	1.00	NR	7.36	6.27	20
240	Garland O.F. (Taylor)	1.32	2.18	.50	.52	.92	1.20	NR	6.64	6.64	1
24	Halogeton Exc. #1	1.35	2.94	.60	.56	.59	1.32	NR	7.36	5.44	21
167	Halogeton Exc. #2	1.43	3.04	.67	.55	.63	1.41	NR	7.73	5.97	9
168	Halogeton Exc. #3	1.95	2.54	.68	.52	.51	1.24	NR	7.44	5.56	9
177	Hawk Exc.	1.07	2.56	1.36	.49	.91	1.10	NR	7.18	6.11	19
145	Hilltop Springs	2.76	NR	6.58	NR	.69	3.39	NR	13.42	14.70	10
12	Horse Creek Exc.	3.83	2.37	1.01	.34	1.98	1.93	NR	11.46	11.05	21
113	Horse Haven Exc.	2.36	2.05	1.30	.24	.86	1.31	NR	8.12	6.81	14
21	Kane Deer Exc. UW	3.73	2.49	.49	.58	.91	1.10	NR	9.30	11.69	16
149	Kane GRI Exc. UW	3.68	2.38	.48	.56	.86	1.08	NR	9.04	12.29	13
246	Kane Seed Exc. (Taylor)	1.65	2.00	.90	.60	1.00	1.10	NR	7.25	7.25	1
116	Kane Seed Exc. UW	2.10	2.85	.49	.54	.83	.65	NR	7.46	6.89	13
77	Kirby Creek Exc.	3.50	NR	2.70	NR	2.18	.49	.55	9.42	9.66	18
223	Kirby Creek WRA 9	2.30	2.55	.58	.38	1.10	.39	NR	7.30	8.36	2
232	Lime Ridge BLM 17		INST	1.60	1.00	1.80	.85	NR			
184	Little Dry Creek UW	2.71	3.07	1.43	.74	.85	2.02	NR	10.82	8.42	6
242	Little Dry Creek (Taylor)	1.40	3.10	.60	.55	1.00	1.75	NR	8.40	8.40	1
234	Little Sand Coulee (Taylor)	1.25	3.53	1.10	.90	1.53	1.75	NR	10.06	10.06	1
111	Lower Enos Creek Exc.	3.28	5.14	2.83	.21	1.02	1.19	NR	13.67	10.92	13
224	Luman Creek WRA 5	3.25	3.95	.70	.70	2.50	1.65	NR	12.75	11.49	2
148	Medicine Lodge GRI Exc.	5.70	3.86	1.44	.35	1.38	1.97	NR	14.70	14.19	13
166	Mills Burn	5.70	3.96	.49	.21	1.48	1.06	NR	12.90	12.52	10
205a	Murphy Draw BLM 5	.83	3.30	2.14	.68	.91	1.40	NR	9.26	7.47	3
205b	Murphy Draw UW	1.16	3.96	2.20	.54	.80	1.15	NR	9.81	7.69	3
183	North Butte Thermop. Relic	3.43	2.26	.31	.05	1.76	.38	NR	8.19	10.64	9
241	North Cowley (Taylor)	1.95	3.05	.35	.50	.50	1.35	NR	7.70	7.70	1
244	North Shell Allot. (Taylor)	1.85	2.15	.95	.25	.85	1.20	NR	7.25	7.25	1
215	O.B. Resevoir BLM 15	NR	6.00	1.30	1.20	2.45	.80	NR			
237	Oregon Basin (Taylor)	3.30	3.35	1.00	.62	.53	2.25	NR	11.05	11.05	1
236	Pole Cat Bench (Taylor)	1.40	2.65	.80	.68	.87	2.30	NR	8.70	8.70	1
175	Potatoe Ridge Exc. (EULA)	3.25	2.06	1.52	.41	1.09	1.87	NR	10.20	8.07	13
225	Potatoe Ridge WRA 1	1.01	2.13	1.65	.40	1.25	1.65	NR	8.09	7.14	2

TABLE IV. Continued

Rain Gauge No.	Gauge Name	Apr 15 '80	Jun 1 '80	Jul 1 '80	Aug 1 '80	Sep 1 '80	Oct 15 '80	Nov 30 '80	1980 Total	Long Term Average	No. Years Record
202a	Prospect Creek BLM 2	1.26	4.74	1.45	1.25	2.25	1.10	NR	12.05	9.69	3
202b	Prospect Creek UW										
204a	Grass Creek BLM 4 = Rankin	1.69	3.43	1.74	.81	1.15	1.28	NR	10.10	9.12	3
204b	Rankin Basin Exc. UW	2.65	3.62	1.62	.79	.89	1.48	NR	11.05	10.07	3
204c	Rankin Basin Exc. UWL	2.41	3.45	1.56	.68	.88	1.36	NR	10.34	10.59	3
185	Rice Burn Exc.	6.24	3.73	.82	.64	1.13	1.75	NR	14.31	13.77	7
233	Rock Creek BLM 18 (Taylor)				INST	1.50	NR	NR			
182	Round Top Mtn. Relic	E3.40	E2.30	.33	.08	1.62	.48	NR	E8.24	11.59	9
180	Sand Creek Exc.	1.88	2.10	.82	.09	.80	.91	NR	6.60	6.68	14
226	Sand Draw WRA 8	2.80	1.80	.48	.34	1.90	.36	NR	7.68	6.92	2
75	Sand Gulch Exc.	2.55	NR	2.75	NR	2.10	.56	.50	8.46	8.90	19
209	Schuster Draw BLM 9	1.50	1.75	1.40	.70	1.10	.80	NR	7.25	7.25	3
23	Sheep Springs Exc. UW	4.67	4.26	1.79	.28	1.12	2.52	NR	14.64	13.83	20
227	Sheep Springs WRA 2	2.20	4.10	1.70	.24	1.23	2.50	NR	11.97	11.44	2
174	Sheldon Gulch Exc. (ATGA)	3.26	2.05	1.61	.39	1.11	1.82	NR	10.24	7.68	13
231	So. Fork Meeteetse Cr. (Taylor)	3.15	4.50	1.85	1.25	1.25	5.00	NR	17.00	17.00	1
192	Sky Line	3.25	NR	5.45	NR	1.13	2.48	NR	12.31	8.13	7
36	Smilo Exc.	3.32	1.75	.33	.33	1.35	.73	NR	7.81	9.07	20
210	So. Fork 15 Mile Creek BLM 10	1.98	1.95	1.82	.85	.94	1.16	NR	8.68	8.32	3
203	Spring Creek BLM 3	1.04	1.95	1.35	.19	.92	.95	NR	6.40	6.25	3
228	Spring Creek Road WRA 7	3.50	2.45	1.85	.32	1.70	.84	NR	10.66	9.63	2
206	Squaw Teats BLM 6	1.65	3.47	1.42	.43	1.10	1.04	NR	9.11	7.68	3
191	State Line	.41	NR	4.27	NR	1.04	1.17	NR			
181	Tolman Ridge Exc.	1.85	2,24	,84	,08	,95	,86	NR	6.82	6.39	14
214	Twentyone Creek BLM 14	2.14	3.76	1.10	.92	1.52	1.05	NR	10.49	11.89	3
39	Two Mile Hill Exc.	3.15	NR	2.30	NR	1.56	.89	.70	8.60	9.47	20
22	Upper Enos Creek Exc.	4.47	5.52	1.98	E.60	1.05	1.71	NR	E15.33	14.99	12
213	Wagonhound BLM 13	1.52	3.01	1.52	.92	1.80	.72	NR	9.49	8.64	3
201	Waugh Dome BLM 1	1.23	3.07	1.14	.33	1.29	.60	NR	7.66	9.20	3
13	West Pasture Exc.	.78	3.06	1.64	.41	.58	.86	NR	7.33	5.71	19
239	Whistle Creek (Taylor)	1.38	2.60	.45	.40	.80	1.50	NR	7.13	7.13	1
178	Willwood Exc.	.87	2.51	1.02	.64	1.59	.99	NR	7.62	6.16	20
115	Worland Cattle Co. Exc.	2.25	NR	2.00	NR	2.10	1.58	.90	8.83	8.25	13
238	Y U Bench (Taylor)	NR	3.50	1.10	.74	.44	1.60	NR	7.38	7.38	1

Table V. Seasonal Distribution of precipitation (inches) by county, region, and drainage areas for 1979.

U.W. and BLM Precipitation Gauges	Recording Dates 1980				No. of Gauges	1980 Total Avg. Ppt.	Long Term Ann. Avg.	No. Gauges above (+) or below (-) long term avg.	
	4/15	7/1	9/1	10/15				(+)	(-)
Big Horn County	2.26	3.70	1.45	1.42	30	8.83	8.18	20	10
Park County	2.41	4.54	1.43	2.30	18	10.68	9.84	9	9
Washakie County	2.36	3.31	1.59	.92	26	8.18	8.01	17	9
Hot Springs County	2.64	4.46	1.98	.89	19	8.97	10.04	9	10
Big Horn Basin Avg.[1]	2.40	3.91	1.59	1.34	93	9.24	8.83	55	38
Percent by Season	26.0%	42.3%	17.2%	14.5%		100.0%	(+0.41)		
Freemont County									
Central Basin	2.57	3.11	.85	0.75	32	7.23	8.10	7	25
Uplands & Mountains	4.65	3.35	.61	1.25	9	9.86	10.20	2	7
County Average	3.02	3.17	.80	.86	71	7.75	8.56	9	32
Percent by Season	38.4%	40.4%	10.2%	11.0%		100.0%	(-0.71)		
Natrona County	3.11	2.01	1.25	.21	9	6.58	9.02	0	9
Percent by season	47.3%	30.5%	19.0%	3.2%		100.0%	(-2.44)		
Carbon County	3.72	3.92	1.18	.60	13	0.42	8.97	10	3
Sweetwater County	4.11	2.82	1.18	1.55	16	9.66	7.94	15	1
Central South Wyo Avg.[1]	3.94	3.31	1.18	1.12	29	9.55	9.35		
Percent by Season	41.3%	34.7%	12.3%	11.7%		100.0%	(+0.20)		
Sublette County	2.65	2.95	1.40	.95	4	7.95	6.59	4	0
Uinta County	4.33	2.53	1.10	1.68	2	9.64	8.08	2	0
Lincoln County	6.75	3.28	1.28	1.65	7	12.96	18.63	6	1
Western Wyo Ave.[1]	5.12	3.06	1.29	1.44	13	10.91	9.23	12	1
Percent by Season	46.9%	28.1%	11.8%	13.2%		100.0%	(+1.68)		
Weather Service Station Gauges									
Big Horn Drainage	2.87	3.95	1.88	1.83	21	10.53	9.17	14	5
Percent by Season	27.3%	37.5%	17.8%	17.4%		100.0%	(+1.36)		
Wind River Drainage									
Central Basin	2.20	2.74	.96	.82	10	7.73	8.42	2	5
Uplands & Mountains	6.54	3.98	.88	1.10	7	12.50	13.14	1	2
Percent by Season	41.2%	39.6%	9.6%	9.6%		100.0%	(-0.64)		
Platte Drainage	4.50	2.87	1.82	.65	11	9.84	11.38	3	4
Percent by Season	45.7%	29.2%	18.5%	6.6%		100.0%	(-1.54)		
Green River Drainage	4.56	3.68	1.27	1.03	15	10.55	8.57	9	2
Percent by Season	48.3%	34.9%	12.0%	9.8%		100.0%	(+1.98)		

[1] Weighted average for all gauges by county or drainage region

Table VI. Distribution of 1980 precipitation for three vegetation types at the Big Horn Basin permeter gauges.

Vegetation Type		10/15- 4/15	4/15- 6/1	6/1 7/1	7/1 8/1	8/1 9/1	9/1 10/15	Total Annual	Normal
Juniper-	(n=8) $\bar{X}$	4.73	3.53	1.01	.48	1.11	1 .46	12.32	-0.28
Woodlands	% of annual	38.4%	28.7%	8.2%	3.9%	9.0%	11.8%	100.0%	
Sagebrush	(n=5) $\bar{X}$	3.52	3.67	1.78	.51	1.29	1.72	12.49	+0.96
Grasslands	% of Annual	28.2%	29.4%	14.2%	4.1%	10.3%	13.8%	100.0%	
Desert	(n=6) $\bar{X}$	2.22	2.58	.93	.50	.79	1.38	8.40	+1.80
Shrublands	% of Annual	26.4%	30.7%	11.1%	6.0%	9.4%	16.4%	100.0%	
All Vegetation	(n=19)$\bar{X}$	3.62	3.27	1.19	.49	1.06	1.50	11.13	+0.70
Types	% of Annual	32.5%	29.4%	10.7%	4.4%	9.5%	13.5%	100.0%	
JUNIPER WOODLANDS									
149	Kane GRI Exclosure	3.68	2.38	.48	.56	.86	1.08	9.04	-3.25
21	Kane Deer Exclosure	3.73	2.49	.49	.58	.91	1.10	9.30	-2.39
166	Mills Burn	5.70	3.96	.49	.21	1.48	1.06	12.90	+0.38
22	Upper Enos Creek Exc.	4.47	5.52	1.98	E.60	1.05	1.71	E15.33	+0.34
184	Little Dry Creek	2.71	3.07	1.43	.74	.85	2.02	10.82	+2.40
148	Medicine Lodge GRI Exc.	5.70	3.86	1.44	.35	1.38	1.97	14.70	+0.51
185	Rice Burn Exclosure	6.24	3.73	.82	.64	1.13	1.75	14.31	+0.54
150	Big Trails GRI Exc.	5.64	3.25	.97	.15	1.22	.99	12.22	-0.80
	Averages (n = 8)	4.73	3.53	1.01	.48	1.11	1.46	12.32	-0.28
	Percent by Season	38.4%	28.7%	8.2%	3.9%	9.0%	11.8%	100.00	
SAGEBRUSH-GRASSLANDS									
100	Buffalo Basin Exclosure	3.16	2.96	1.66	.92	1.42	1.51	11.63	_1.14
111	Lower Enos Creek Exc.	3.28	5.14	2.83	.21	1.02	1.19	13.67	+2.75
12	Horse Criik Exclosure	3.83	2.37	1.01	.34	1.98	1.93	11.56	+0.41
204b	Rankin Basin Exclosure	2.65	3.62	1.62	.79	.89	1.48	11.05	+1.98
23	Sheep Springs Exclosure	4.67	4.26	1.79	.28	1.12	2.52	14.64	+0.81
	Averages (n =)	3.52	3.67	1.78	.51	1.29	1.72	12.49	+.96
	Percent by Season	28.2%	29.4%	14.2%	4.1%	10.3%	13.8%	100.0%	
DESERT SHRUBLANDS									
24	Halogeton Exclosure #1	1.35	2.94	.60	.56	.59	1.32	7.36	+1.92
167	Halogeton Exclosure #2	1.43	3.04	.67	.55	.63	1.41	7.73	+1.76
168	Halogeton Exclousre #3	1.95	2.54	.68	.52	.51	1.24	7.44	+1.88
116	Kane Seed Exclosure	2.10	2.85	.49	.54	.83	.65	7.46	+0.57
175	Potato Ridge Exclosure	3.25	2.06	1.52	.41	1.09	1.87	10.20	+2.13
174	Sheldon Gulch Exclosure	3.26	2.05	1.61	.39	1.11	1.82	10.24	+2.56
	Averages (n = 6)	2.22	2.58	.93	.50	.79	1.38	8.40	+1.80
	Percent by Season	26.4%	30.7%	11.1%	6.0%	9.4%	16.4%	100.0%	
ALL VEGETATION TYPES									
	Average (n =19)	3.62	3.27	1.19	.49	1.06	1.50	11.13	+.70
	Percent by Season	32.5%	29.4%	10.7%	4.4%	9.5%	13.5%	100.0%	

SECTION IV

PRODUCTIVITY-PHENOLOGY INTERRELATION STUDY

1980

Introduction

Relationships between plant phenology, productivity and annual weather variations are not well understood. There is a need to determine standing crop variation with seasonal progression of annual herbage production, as it relates to phenological development and weather variations. Such information is essential for determining rangeland herbage production potential from data collected at times other than peak standing crop. Interrelationships of time with phenological stages and the development of standing crop of annual herbage production, which could normally be expected at each major plant growth stage, has been little investigated because of extensive monetary, manpower and time commitments necessary for such comprehensive research attempts. There is presently existent information of long-term continuous study of herbage production and/or cover and composition, on some 100 exclosure locations throughout western Wyoming. Soils, precipitation and other ecological-environmental information also have been obtained from many of them. Recent five year intensive studies of phenology and production were conducted on 12 of those locations. Continued study to address phenology-standing crop dynamics and relationship to range site productive potential can be conveniently integrated into the ongoing program.

Objectives

The objectives of this study are twofold. First, is to determine the relationship of plant productivity with soils and with phenological growth stages. The environmental variables of annual and long-term precipitation, air temperature and soil temperature will be studied in conjunction with both plant phenology and productivity. The second objective is to develop predictive modeling for interpretation of quantitative data which can be used in management decision processes.

Procedures

Procedures that were conducted to achieve estimates of productivity involved four major forms of activities:

a. early and late cover and standing crop determination
b. recording phenology of prime species on existing permanent transect lines,
c. selection and clipping of prime species plant culm and bud units,
d. recording environmental variables.

Standing Crop Procedures

Determination of cover and standing crop followed existing procedures for estimation of total annual growth production. From transects of 20 quadrats, 1' x 1', basal cover of all herbaceous species (grasses, upright and mat-form forbs, plains pricklypear) and crown cover of woody half-shrubs and shrubs was obtained. These data included estimation values as low as 0.1% basal cover. Generally, a minimum of eight culms were required to attain a 1.0% cover estimation value for single stemmed grasses and forbs. Bunchgrasses and mat-form forb species, including plains pricklypear, basal cover value estimates were simple expressions of the estimated proportional area of the quadrat occupied by any species. Guide frames of several different sizes representing different proportional amounts of a quadrat were utilized to assist the accuracy of estimation. Crown cover estimation of shrubs and low-growing half-shrubs generally had provision for reduction of the estimate value to accommodate significant bare or unoccupied areas within the crown perimeter. Computation procedures usually distinguished or separated the basal understory universe data from that of the shrub overstory universe.

Determination of standing crop involved clipping all grasses and grass-likes and upright forb species within each of the 1' x 1' (30 x 30 cm) quadrats. All were clipped at ground or crown level. Perennial grass and grass-like species of each transect were placed in individual bags. Annual grasses, annual forbs and perennial forbs were combined in bags identified only by group. Each bag was identified by exclosure name, date, transect location or treatment area and with quadrat number for subsequent correlation with corresponding basal cover estimates. All bags were over dried at 70°C for 24 hours. Weighing was done on a Sartorius top loading balance and values rounded to the nearest 0.01 gram. The conceptual need for such a weight unit derived from the fact that many specimens of clipped plants weighed only as much as two or three hundredths of a gram. To have used a weight limit of 0.1 or 1.0 gram would have resulted in excessive inflation of very small samples. The numerical process of recording weights at hundredths of a gram thus should be recognized in this light and not that the data specifically express a concept of accuracy at that level.

Standing crop of shrubs was determined by identifying weight units for clipping of each species; and corollary sampling with a 4' x 5' wire frame gridded to 6" x 6" within which numbers of weight units were estimated at each of 20 sampling sites. Weight units of specimens were identified and all new green growth material, including new twig growth, was clipped or plucked from within a 6" x 6" quadrat section. Three weight units were obtained for each species. Weight units of mat-form woody species such as Hood's phlox and Hooker sandwort were obtained from common size plant units, often 3"-5" in diameter, from which the annual growth was removed. Weight units of small upright shrubs and half-shrubs such as winterfat and granite gilia were obtained by removal of all annual growth from the entire plant. Each weight unit of plains pricklypear consisted of ten leaf pads, but unlike all other shrub species, the oven dried weight of the ten pads was considered to be ten times greater than the annual growth increment. Each actual weight unit was selected on a representative basis for each species and density of weight units within each setting of the 4' x 5" wire quadrat was determined as a reflection of the total composite of all materials of a species within a macro-quadrat.

For determination of early season standing crop, clipping and estimation of weight units was conducted during late May and early June. For determination of greatest standing crop, herbaceous species clippings were conducted during August. Weight unit estimations were delayed till late September - early October to allow for complete seed maturation of sagebrushes and for natural early shedding of most leaves which had erupted during the previous fall season.

Phenology Transect Procedures

Monitoring phenodynamics of vegetation at each of twelve exclosure study locations was initiated in 1973. At that time phenology stages of plants were defined by written descriptive statements and combined numerical scoring values ranging from 0.0 through 17.0. A recent modification, incorporating the early separation of vegetative from reproductive stages, but which changed numerical values such that scoring values ranged from 1 through 8 for vegetative categories and 9 through 17 for reproductive categories of plant growth was initiated in 1979.

For determination of average phenology of each of the four prime species (*Agropyron smithii* and *A. spicatum*; *Artemisia nova* and *A. tridentata*), transects were established along which 20 plants were identified for repetitive observation and expression of phenological development. Death of shrubs required replacement and loss of grass clone areas, especially western wheatgrass, required identification of replacements, identified by new coordinates along the transect line. A general evaluation of phenological state of all species was obtained by simple observation over the exclosure area.

Earliest seasonal recording of phenology occurred during late April - early May. During the spring-summer period of rapid growth phenologic data were recorded at 14 day intervals. During September and later, data were recorded at three to four week intervals and discontinued after October.

Specific activities for monitoring productivity required the determination of average phenology and corresponding numerical value for each of the prime species at an exclosure. The plants on each phenology transect line were observed and ranked according to vegetative and reproductive stage.

Productivity Clipping Procedures

Beginning at least by the time of early standing crop estimation, procedures for characterization of productivity of the four prime species and the community plant population were initiated. Twenty individual plant units of each prime species were clipped. These were selected to best represent the average phenology of a given prime species as indicated from the values of average phenology on the transect lines. The specimens to be clipped were selected at locations near the corresponding phenology transect line. Twenty were clipped and individually bagged with exclosure, species and date identification.

The selection of productivity units at the observation time prior to the clipping date was incorporated into the field procedures because of the intended extrapolation of the prime species productivity data to that of the plant community. Productivity measures of entire plant populations typically involve clipping of all species at frequent intervals throughout the growth season. These data provide estimates of total standing crop at each date. They also require extensive work force and time allocation requirements totally beyond the limits of the present study of twelve locations geographically distributed over an area representing the western two-thirds of Wyoming.

With the data for both early and mid-season community standing crop and with productivity data of four prime species at frequent intervals throughout the growing season, essentially April through October, extrapolation and interpolation can be utilized to express coefficients of weight-phenology related development of the prime species to that of the community populations. Thus, there appeared to be an apparent conceptual need, when developing the present field procedures, for time extended relations of phenology-productivity unit selection and actual harvesting of the individual plant units.

The procedures described in this report may not as closely depict true productivity values of community populations as might be determined by clipping of all species. The expression of standing crop at frequent intervals, derived from the productivity weight units integrated with early and late community standing crop, however, does provide a reasonably valid characterization of community productivity dynamics. In addition, the interrelation of prime species productivity units with phenologic progress will provide detailed description of phenodynamics and related standing crop values of these species; data not available elsewhere that could be utilized for application to the semi-arid sagebrush-grass region typical of western Wyoming.

Time-variable influence of environmental factors will influence both productivity and phenology. By interpretation of cause-effect responses, the biotic and environmental data will provide information useful for prediction of growth and phenodynamics. Thus, future vegetation inventory processes can estimate the proportion of probable total crop production at any time during the growth season, subject to moisture and temperature benefits or restraints.

Productivity units of the wheatgrasses were individual culms. Selection was based primarily on the phenology average of the permanent transect lines. Height of culms, although often uniform for most plants at a given stage of development, was specifically removed from the observer selection process.

Productivity units of the sagebrushes were individual twig tip initiation buds. Phenologic development, representative of the adjacent permanent phenology transect, defined the observer selection criteria. Length of current year twig development was utilized only if it related to identification of phenology which became definitive in some late season reproductive stages.

Recording Environmental Veriables

At each date of vegetation sampling concomitant procedures for determination of environmental variables were completed.

Air temperature since the previous sampling data was recorded from a single max-min thermometer located in a shaded site for each study area. Current temperature was also recorded.

Soil moisture was determined from gravimetric samples at 0-6", 6"-12", and 18"-24". Samples were taken with a king tube and three sets of samples were taken adjacent to each phenology transect line. Soil samples are placed in air tight metal containers and weighed soon after collection with a triple beam balance. Upon return to the laboratory the container caps were removed, for oven drying at 70°C for 48 hours, prior to dry weight determination. Percent moisture was determined by the formula:

$$100.0 - \frac{\text{Net dry weight}}{\text{Net wet weight}} \text{ X } 100 = \text{percent moisture}$$

Soil temperature at 15" depth was obtained at each soil moisture sampling site by inserting a thermometer probe to the desired depth.

Often a small rod must be driven into the soil to provide access for the thermometers probe.

Precipitation since the previous sampling date was obtained from metal cylindrical gauges of a diameter such that 1 inch of precipitation is equal to 100 ml.

1980 Results

Productivity clippings were obtained at two weeks intervals during the majority of the growth season beginning in late April and ending in latter September. Data were obtained ten times on most locations.

A disastrous break in the fence at the Horse Creek study site resulted in complete loss of data from grasses and forbs, which were completely grazed by livestock that penetrated the exclosure during the second week of June. The very intensive livestock utilization may have an affect on herbage production during later years and will be monitored to determine whether response does occur.

Productivity clippings weights, phenology, and related data are presented in Table 1. The most surprising information was that related to average growth increment changes through time. Changes in culm weights were positive through mid-June but at many locations, culm weight losses for grasses and for buds of sagebrushes, were closely linked with warm summer temperatures and reduced effective precipitation. Detailed analyses will be conducted in the future.

Table I. Average phenology and productivity clipping weights (gms) for 1980 for each of twenty weight units of the primary species for each sampling date.

Species	Page
Agropyron smithii..	26
Agropyron spicatum.......................................	37
Artemisia nova vegetative................................	42
Artemisia nova reproductive..............................	45
Artemisia tridentata vegetative..........................	48
Artemisia tridentata reproductive........................	60

STUDY AREA BUD KIMBAL   AGROPYRON SMITHII   1980 VEGETATIVE

DATE	PHENOLOGY VEG	PHENOLOGY REPR	PRODUCTIVITY CLIPPINGS										MEAN	STD DEV	GROWTH INCREMENT
27 APR	3.7	0.0	.030	.023	.016	.011	.011	.013	.008	.023	.035	.024			
			.024	.019	.026	.008	.029	.031	.011	.006	.018	.015	.019	.0080	-.001
3 MAY	4.1	0.0	.033	.026	.007	.016	.018	.032	.011	.016	.014	.032			
			.028	.007	.008	.025	.008	.015	.023	.013	.011	.023	.018	.0086	.029
4 JUNE	4.7	0.0	.039	.037	.015	.031	.042	.062	.017	.048	.067	.062			
			.040	.046	.032	.089	.068	.024	.046	.060	.019	.076	.047	.0218	.014
19 JUNE	5.5	0.0	.077	.053	.095	.009	.054	.013	.008	.013	.046	.034			
			.076	.053	.038	.079	.156	.132	.142	.036	.076	.026	.061	.0438	.019
2 JULY	5.0	0.0	.080	.092	.107	.042	.062	.082	.042	.096	.116	.094			
			.027	.056	.146	.108	.037	.096	.085	.077	.061	.074	.080	.0295	-.005
14 JULY	6.1	15.8	.117	.097	.138	.077	.080	.033	.090	.047	.042	.092			
			.037	.115	.045	.055	.054	.057	.092	.070	.078	.076	.075	.0269	.020
29 JULY	6.8	16.0	.054	.116	.097	.061	.063	.174	.046	.084	.105	.164			
			.216	.126	.073	.081	.033	.043	.110	.073	.137	.039	.095	.0494	-.074
20 AUG	8.0	16.8	.019	.025	.032	.016	.005	.038	.007	.024	.017	.016			
			.028	.032	.013	.035	.018	.012	.026	.002	0.000	0.000	.020	.0104	.010
6 SEPT	7.1	17.0	.016	.015	.032	.045	.016	.049	.017	.022	.052	.054			
			.016	.036	.014	.021	.018	.031	.063	.034	.023	.027	.030	.0152	.009
21 SEPT	7.6	0.0	.005	.099	.137	.012	.022	.040	.041	.035	.018	.026			
			.019	.011	.025	.025	.011	.047	.017	.087	.015	.092	.039	.0360	

0.0 = NOT RECORDED

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    STUDY AREA CUMBER. #3               AGROPYRON SMITHII                                 1980 VEGETATIVE
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   DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                          MEAN   STD    GROWTH
              VEG  REPR                                                                                DEV   INCREMENT
***************************************************************************************************************************

  20  MAY      4.7  0.0         .049   .052   .035   .061   .046   .025   .047   .043   .030   .045
                                .034   .026   .057   .034   .045   .034   .041   .055   .045   .041   .042 .0100
                                                                                                                  .021
  11 JUNE      5.5  0.0         .070   .057   .085   .062   .063   .032   .048   .087   .044   .046
                                .063   .075   .069   .051   .073   .069   .048   .075   .062   .074   .063 .0144
                                                                                                                  .026
  17 JUNE      5.8 11.0         .144   .120   .028   .064   .057   .053   .088   .128   .057   .025
                                .104   .142   .098   .089   .121   .121   .144   .066   .076   .056   .089 .0379
                                                                                                                 -.025
   1 JULY      6.0 11.8         .035   .051   .035   .058   .079   .070   .085   .056   .056   .055
                                .056   .090   .083   .062   .057   .035   .089   .102   .080   .048   .064 .0197
                                                                                                                  .089
  15 JULY      6.1 14.1         .088   .087   .137   .123   .123   .093   .105   .164   .165   .113
                                .101   .122   .086   .164   .196   .122   .161   .150   .619   .139   .153 .1139
                                                                                                                 -.058
   4  AUG      6.3 15.0         .105   .119   .122   .073   .075   .070   .109   .058   .093   .072
                                .144   .106   .087   .114   .094   .067   .057   .074   .161   .100   .095 .0281
                                                                                                                 -.007
  12  AUG      6.5 15.8         .099   .144   .045   .091   .062   .117   .082   .085   .086   .121
                                .094   .078   .083   .105   .045   .110   .052   .068   .113   .082   .088 .0261
                                                                                                                 -.006
  31  AUG      6.4 16.6         .110   .081   .114   .108   .118   .074   .091   .065   .084   .068
                                .045   .062   .089   .051   .062   .090   .054   .109   .076   .057   .082 .0227
                                                                                                                 -.003
  20 SEPT      6.8  0.0         .128   .042   .094   .113   .098   .094   .038   .073   .060   .098
                                .108   .066   .066   .097   .043   .050   .096   .045   .031   .081   .079 .0276

                                0.0 = NOT RECORDED
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     STUDY AREA DEMER                          AGROPRYON SMITHII                              1980 VEGETATIVE
                ---------                     ----------------------

   DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                               MEAN  STD    GROWTH
              VEG  REPR                                                                                    DEV   INCREMENT
*********************************************************************************************************************


  27  APR     4.2  0.0     .029  .042  .041  .039  .021  .046  .051  .039  .024  .098
                           .026  .026  .022  .017  .028  .036  .080  .041  .039  .011  .038 .0205
                                                                                                          .024
   3  MAY     4.5  0.0     .069  .112  .057  .046  .043  .043  .026  .083  .061  .083
                           .111  .024  .053  .057  .031  .078  .053  .042  .042  .099  .062 .0270
                                                                                                         -.002
  23  MAY     5.4  0.0     .090  .015  .098  .075  .009  .081  .031  .047  .021  .131
                           .106  .090  .053  .073  .052  .068  .047  .019  .066  .024  .060 .0339
                                                                                                          .068
   4 JUNE     4.9  0.0     .107  .197  .278  .049  .094  .068  .148  .176  .094  .231
                           .082  .043  .095  .138  .108  .101  .092  .052  .160  .225  .128 .0667
                                                                                                         -.043
  19 JUNE     5.5  0.0     .142  .071  .057  .032  .065  .064  .117  .088  .076  .055
                           .133  .100  .110  .158  .055  .077  .072  .083  .079  .074  .085 .0322
                                                                                                         -.008
   2 JULY     5.4 14.0     .066  .078  .153  .117  .063  .037  .065  .055  .095  .086
                           .079  .044  .058  .067  .057  .103  .073  .081  .085  .066  .077 .0262
                                                                                                         -.027
  15 JULY     6.4 15.6     .067  .017  .031  .058  .028  .045  .027  .028  .061  .013
                           .055  .029  .036  .046  .050  .045  .043  .039  .037  .030  .040 .0165
                                                                                                          .010
  28 JULY     6.7 15.8     .039  .098  .008  .068  .221  .045  .052  .028  .117  .092
                           .041  .015  .082  .060  .021  .026  .022  .031  .028  .029  .056 .0490
                                                                                                          .004
  21  AUG     6.8 16.4     .023  .103  .042  .059  .031  .085  .095  .048  .043  .069
                           .091  .104  .022  .059  .006  .064  .037  .040  .107  .057  .060 .0310
                                                                                                          .001
   6 SEPT     6.8 16.5     .045  .012  .046  .048  .074  .103  .061  .102  .055  .099
                           .047  .081  .044  .029  .035  .061  .052  .070  .030  .096  .063 .0258
                                                                                                         -.015
  20 SEPT     6.9 16.8     .024  .049  .023  .022  .013  .049  .020  .040  .080  .035
                           .097  .008  .020  .012  .017  .055  .123  .093  .124  .055  .047 .0377

                             0.0 = NOT RECORDED
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    STUDY AREA FARSON                    AGROPYRON SMITHII                          1980 VEGETATIVE
               ---------               -----------------------

  DATE      PHENOLOGY                       PRODUCTIVITY CLIPPINGS                             MEAN  STD    GROWTH
              VEG  REPR                                                                              DEV   INCREMENT
********************************************************************************************************************


  3  MAY     3.2  0.0       .010  .004  .003  .013  .007  .007  .013  .012  .008  .018
                            .017  .014  .015  .012  .003  .004  .011  .006  .014  .006   .010 .0047
                                                                                                        .020
 21  MAY     4.3  0.0       .034  .016  .027  .035  .026  .043  .010  .036  .025  .029
                            .024  .029  .035  .068  .038  .019  .026  .032  .019  .033   .030 .0120
                                                                                                       -.001
  3 JUNE     4.7  0.0       .020  .030  .016  .051  .023  .031  .030  .024  .022  .058
                            .023  .021  .021  .024  .036  .025  .043  .026  .024  .041   .029 .0110
                                                                                                        .044
 17 JUNE     5.5  0.0       .069  .082  .032  .114  .047  .147  .038  .060  .082  .093
                            .083  .115  .034  .061  .044  .109  .121  .071  .031  .041   .074 .0342
                                                                                                       -.006
  1 JULY     5.9  0.0       .067  .033  .056  .103  .084  .044  .126  .098  .051  .049
                            .078  .055  .089  .028  .049  .069  .066  .074  .019  .126   .068 .0298
                                                                                                        .002
 15 JULY     5.9 11.2       .127  .040  .024  .044  .023  .043  .082  .097  .052  .134
                            .105  .069  .109  .037  .095  .085  .041  .075  .042  .073   .070 .0337
                                                                                                        .030
 29 JULY     6.2 14.1       .130  .048  .133  .141  .173  .058  .067  .122  .126  .072
                            .072  .147  .070  .075  .119  .090  .092  .101  .063  .084   .100 .0341
                                                                                                       -.032
 13  AUG     6.4 14.9       .073  .043  .041  .042  .092  .082  .139  .058  .033  .099
                            .071  .068  .069  .046  .140  .039  .035  .061  .058  .078   .068 .0308
                                                                                                       -.029
 31  AUG     6.5  0.0       .034  .028  .049  .047  .031  .033  .034  .021  .063  .023
                            .026  .050  .024  .017  .053  .018  .069  .104  .030  .039   .040 .0211
                                                                                                       -.008
 21 SEPT     6.7  0.0       .034  .052  .003  .017  .026  .032  .009  .052  .006  .024
                            .031  .037  .022  .073  .056  .038  .029  .041  .021  .036   .032 .0177

                            0.0 = NOT RECORDED
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     STUDY AREA HORSE CK.                    AGROPYRON SMITHII                          1980 VEGETATIVE
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    DATE     PHENOLOGY                       PRODUCTIVITY CLIPPINGS                            MEAN  STD    GROWTH
              VEG  REPR                                                                               DEV    INCREMENT
***************************************************************************************************************


   26  APR      4.0  0.0       .013  .032  .024  .014  .012  .020  .024  .019  .016  .012
                               .005  .018  .011  .005  .009  .012  .004  .003  .009  .010   .014 .0075
                                                                                                               .010
    3  MAY      4.4  0.0       .023  .016  .023  .023  .007  .054  .030  .018  .021  .009
                               .021  .051  .008  .019  .016  .022  .023  .022  .032  .030   .023 .0120
                                                                                                               .012
   24  MAY      4.5  0.0       .029  .064  .032  .016  .039  .042  .022  .044  .047  .049
                               .024  .017  .048  .044  .048  .015  .027  .046  .051  .008   .036 .0151
                                                                                                               .006
    6 JUNE      5.2  0.0       .045  .042  .045  .021  .073  .042  .075  .071  .058  .032
                               .021  .019  .043  .043  .018  .031  .035  .038 0.000 0.000   .042 .0179

                                0.0 = NOT RECORDED
     STUDY AREA MESA ANT.                   AGROPYRON SMITHII                             1980 VEGETATIVE
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   DATE      PHENOLOGY                           PRODUCTIVITY CLIPPINGS                               MEAN  STD    GROWTH
              VEG  REPR                                                                                     DEV   INCREMENT
********************************************************************************************************************


  3  MAY      3.5  0.0      .013  .003  .015  .019  .014  .010  .009  .024  .007  .006
                            .006  .009  .011  .004  .015  .013  .010  .014  .014  .011   .011 .0051
                                                                                                               .012
 21  MAY      4.4  0.0      .039  .031  .016  .026  .025  .020  .021  .021  .026  .011
                            .034  .017  .020  .029  .014  .021  .021  .023 0.000 0.000   .023 .0069
                                                                                                               .013
  3 JUNE      4.5  0.0      .035  .024  .032  .039  .059  .021  .033  .025  .020  .021
                            .027  .063  .042  .029  .027  .036  .045  .061  .037  .040   .036 .0130
                                                                                                               .000
 17 JUNE      4.8  0.0      .047  .080  .042  .043  .041  .051  .015  .040  .034  .020
                            .039  .026  .017  .039  .012  .036  .036  .043  .008  .056   .036 .0169
                                                                                                              -.001
  1 JULY      5.5  0.0      .024  .013  .045  .029  .054  .048  .048  .052  .049  .016
                            .044  .032  .024  .035  .019  .042  .015  .048  .033  .040   .036 .0134
                                                                                                               .016
 15 JULY      5.7  0.0      .074  .040  .057  .072  .023  .059  .065  .051  .047  .031
                            .032  .023  .074  .067  .046  .077  .030  .072  .029  .069   .052 .0190
                                                                                                               .014
 29 JULY      6.2  0.0      .077  .070  .040  .078  .053  .049  .073  .048  .066  .053
                            .129  .089  .091  .047  .061  .069  .046  .026  .090  .063   .066 .0230
                                                                                                              -.008
 12  AUG      6.5  0.0      .042  .027  .033  .046  .061  .045  .068  .150  .036  .029
                            .116  .023  .037  .039  .049  .070  .066  .056  .040  .100   .058 .0329
                                                                                                              -.010
 31  AUG      6.8  0.0      .097  .030  .041  .033  .063  .036  .021  .033  .041  .033
                            .089  .049  .071  .066  .027  .040  .027  .063  .077  .017   .048 .0231
                                                                                                               .010
 21 SEPT      6.9  0.0      .033  .032  .020  .052  .047  .048  .071  .094  .074  .073
                            .089  .052  .099  .061  .041  .038  .053  .032  .049  .087   .057 .0229

                            0.0 = NOT RECORDED
   STUDY AREA OWL DRAW              AGROPYRON SMITHII                           1980 VEGETATIVE
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  DATE     PHENOLOGY                      PRODUCTIVITY CLIPPINGS                        MEAN  STD    GROWTH
            VEG  REPR                                                                         DEV   INCREMENT
*****************************************************************************************************************

  4  MAY    4.3  0.0     .024  .009  .021  .029  .025  .035  .009  .019  .017  .024
                         .026  .029  .011  .013  .062  .024  .020  .021  .043  .008  .023 .0127
                                                                                                    .028
 25  MAY    4.9  0.0     .074  .078  .039  .028  .044  .029  .048  .033  .075  .048
                         .042  .047  .045  .064  .075  .072  .033  .038  .035  .073  .051 .0177
                                                                                                   -.006
  2 JUNE    4.8  0.0     .041  .045  .040  .035  .037  .058  .026  .067  .044  .058
                         .044  .037  .042  .052  .046  .037  .028  .051  .052  .055  .045 .0104
                                                                                                    .005
 18 JUNE    5.0  9.8     .037  .023  .093  .016  .107  .038  .028  .083  .038  .038
                         .062  .049  .051  .037  .039  .050  .029  .021  .042  .119  .050 .0287
                                                                                                    .004
 30 JUNE    4.9 12.8     .065  .053  .024  .158  .093  .064  .026  .064  .054  .042
                         .039  .030  .100  .061  .021  .009  .023  .057  .055  .039  .054 .0338
                                                                                                   -.006
 13 JULY    5.8  0.0     .070  .023  .033  .026  .060  .034  .033  .041  .075  .031
                         .013  .092  .030  .060  .071  .067  .038  .082  .035  .040  .048 .0223
                                                                                                   -.017
 28 JULY    6.3 14.6     .027  .028  .020  .020  .033  .059  .029  .034  .025  .017
                         .058  .060  .017  .019  .038  .022  .020  .018  .059  .019  .031 .0155
                                                                                                    .024
 26  AUG    6.7  0.0     .086  .056  .046  .037  .057  .052  .037  .018  .067  .054
                         .049  .061  .050  .140  .036  .019  .064  .085  .031  .054  .055 .0269
                                                                                                    .015
  5 SEPT    6.8 15.5     .073  .135  .061  .123  .086  .049  .079  .048  .040  .023
                         .033  .070  .064  .053  .114  .164  .071  .039  .009  .062  .070 .0389
                                                                                                   -.024
 21 SEPT    7.2 16.4     .039  .028  .035  .043  .051  .052  .067  .070  .077  .018
                         .033  .032  .025  .026  .030  .056  .124  .029  .055  .037  .046 .0245

                         0.0 = NOT RECORDED
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    STUDY AREA RED WASH 2              AGROPYRON SMITHII                          1980 VEGETATIVE
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   DATE      PHENOLOGY                       PRODUCTIVITY CLIPPINGS                            MEAN  STD     GROWTH
              VEG  REPR                                                                               DEV   INCREMENT
***********************************************************************************************************************


  2  MAY     3.6  0.0      .009  .005  .004  .010  .006  .005  .009  .008  .005  .011
                           .010  .011  .009  .006  .015  .016  .007  .016  .005  .003   .008 .0039
                                                                                                          .033
 26  MAY     4.6  0.0      .047  .073  .049  .050  .037  .056  .041  .041  .016  .032
                           .028  .064  .044  .064  .012  .024  .051  .052  .047  .019   .041 .0163
                                                                                                          .016
  2 JUNE     4.5  0.0      .071  .038  .043  .043  .064  .045  .025  .058  .064  .061
                           .025  .032  .067  .101  .083  .056  .081  .057  .062  .078   .058 .0200
                                                                                                         -.004
 16 JUNE     5.3  0.0      .040  .052  .025  .066  .061  .047  .018  .066  .047  .047
                           .071  .037  .057  .043  .085  .057  .064  .089  .021  .076   .053 .0197
                                                                                                          .045
 30 JUNE     5.5  0.0      .090  .021  .088  .062  .102  .062  .216  .121  .122  .129
                           .171  .139  .095  .072  .088  .015  .067  .148  .072  .086   .098 .0479
                                                                                                         -.009
 14 JULY     5.9 12.5      .202  .150  .152  .068  .128  .060  .198  .133  .060  .073
                           .029  .035  .060  .076  .077  .045  .035  .055  .030  .107   .090 .0537
                                                                                                          .031
 28 JULY     6.1 15.6      .130  .268  .116  .172  .139  .060  .150  .164  .115  .161
                           .110  .068  .133  .066  .060  .113  .059  .143  .112  .079   .121 .0507
                                                                                                          .005
 11  AUG     6.5 15.9      .139  .079  .297  .069  .093  .130  .124  .104  .079  .133
                           .148  .087  .125  .075  .091  .136  .117  .128  .235  .122   .126 .0546
                                                                                                         -.062
 30  AUG     6.5  0.0      .068  .076  .066  .058  .053  .041  .098  .057  .062  .068
                           .083  .066  .043  .039  .044  .047  .107  .051  .082  .067   .064 .0186
                                                                                                         -.005
 19 SEPT     6.8  0.0      .056  .011  .025  .083  .052  .044  .033  .059  .116  .029
                           .068  .070  .062  .058  .057  .042  .086  .079  .081  .066   .059 .0244

                            0.0 = NOT RECORDED
  STUDY AREA SHOSHONI 7              AGROPYRON SMITHII                           1980 VEGETATIVE
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 DATE      PHENOLOGY                      PRODUCTIVITY CLIPPINGS                               MEAN  STD    GROWTH
             VEG  REPR                                                                                DEV    INCREMENT
*******************************************************************************************************************


26  APR     4.2  0.0     .027  .037  .009  .038  .014  .020  .012  .002  .010  .027
                         .004  .012  .022  .005  .008  .011  .009  .010  .021 0.000  .016 .0105
                                                                                                        .017
 2  MAY     4.4  0.0     .060  .022  .053  .047  .022  .041  .013  .045  .048  .053
                         .015  .050  .016  .018  .019  .037  .038  .026  .014  .014  .033 .0161
                                                                                                        .049
23  MAY     4.8  0.0     .165  .044  .056  .080  .111  .015  .097  .146  .082  .024
                         .027  .023  .030  .028  .119  .179  .091  .156  .065  .089  .081 .0517
                                                                                                        .006
 5 JUNE     5.4  9.2     .089  .041  .102  .115  .163  .107  .075  .052  .051  .057
                         .028  .060  .130  .148  .182  .037  .040  .074  .088  .104  .087 .0440
                                                                                                        .043
18 JUNE     5.6 11.2     .122  .256  .095  .062  .049  .150  .190  .166  .107  .288
                         .132  .106  .115  .120  .073  .053  .134  .095  .186  .206  .135 .0644
                                                                                                       -.002
 1 JULY     5.4 11.8     .202  .103  .183  .114  .193  .088  .125  .226  .178  .121
                         .135  .087  .038  .075  .266  .059  .113  .118  .206  .041  .134 .0637
                                                                                                       -.024
16 JULY     5.9 12.7     .035  .151  .059  .123  .022  .076  .022  .103  .178  .159
                         .055  .169  .109  .113  .076  .160  .059  .083  .130  .302  .110 .0671
                                                                                                        .051
30 JULY     6.2 15.5     .200  .099  .117  .101  .073  .190  .265  .206  .030  .130
                         .165  .207  .137  .132  .250  .144  .244  .247  .050  .204  .160 .0665
                                                                                                       -.020
15  AUG     6.5 15.8     .133  .104  .079  .166  .145  .197  .129  .135  .094  .120
                         .356  .142  .033  .082  .057  .062  .132  .326  .176  .114  .140 .0795
                                                                                                        .008
30  AUG     6.8 15.9     .204  .075  .061  .093  .130  .135  .141  .241  .245  .062
                         .152  .033  .215  .236  .121  .232  .150  .219  .155  .057  .149 .0595
                                                                                                       -.084
21 SEPT     7.1  0.0     .033  .087  .085  .131  .072  .057  .136  .063  .126  .035
                         .046  .027  .061  .047  .025  .018  .110  .013  .040  .053  .064 .0391

                         0.0 = NOT RECORDED
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   STUDY AREA SWEETWATER              AGROPYRON SMITHII                            1960 VEGETATIVE
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  DATE     PHENOLOGY                          PRODUCTIVITY CLIPPINGS                          MEAN  STD   GROWTH
            VEG  REPR                                                                               DEV   INCREMENT
*********************************************************************************************************************


   4  MAY     4.2  0.0     .026  .030  .022  .019  .024  .027  .034  .024  .028  .025
                           .017  .022  .037  .025  .027  .016  .039  .038  .023  .032   .027 .0066
                                                                                                      .027
  22  MAY     4.4  0.0     .056  .050  .039  .034  .045  .046  .083  .080  .046  .052
                           .063  .060  .045  .042  .069  .080  .059  .029  .046  .058   .054 .0150
                                                                                                      .017
   4 JUNE     5.0  0.0     .056  .055  .056  .103  .027  .046  .034  .054  .106  .086
                           .065  .087  .084  .054  .087  .075  .076  .088  .092  .084   .071 .0222
                                                                                                      .013
  18 JUNE     5.2  0.0     .042  .072  .091  .148  .074  .066  .120  .104  .089  .180
                           .055  .031  .093  .077  .056  .083  .060  .080  .079  .082   .084 .0345
                                                                                                      .016
   2 JULY     5.7 11.5     .108  .067  .138  .153  .019  .147  .154  .128  .029  .032
                           .114  .068  .048  .061  .060  .128  .146  .109  .133  .150   .100 .0465
                                                                                                     -.012
  16 JULY     5.9  0.0     .057  .058  .058  .057  .076  .140  .106  .110  .083  .103
                           .085  .046  .069  .110  .090  .080  .119  .126 0.000 0.000   .087 .0273
                                                                                                     -.015
  30 JULY     6.3 16.2     .096  .056  .103  .085  .079  .067  .105  .038  .137  .041
                           .108  .032  .063  .083  .056  .102  .042  .071  .047  .031   .072 .0298
                                                                                                      .022
  14  AUG     6.6  0.0     .097  .049  .084  .049  .071  .066  .047  .075  .254  .076
                           .086  .053  .191  .151  .074  .044  .047  .097  .163  .103   .094 .0554
                                                                                                     -.030
  29  AUG     6.8 16.6     .062  .060  .086  .036  .037  .067  .056  .086  .080  .071
                           .034  .055  .056  .081  .046  .095  .072  .040  .060  .101   .064 .0199
                                                                                                      .011
  21 SEPT     7.1  0.0     .083  .073  .052  .075  .122  .057  .079  .161  .044  .063
                           .078  .068  .026  .068  .061  .127  .078  .074  .044  .078   .075 .0308

                            0.0 = NOT RECORDED
   STUDY AREA UPPER GOV.                     AGROPYRON SMITHII                            1960 VEGETATIVE
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  DATE      PHENOLOGY                           PRODUCTIVITY CLIPPINGS                            MEAN  STD    GROWTH
              VEG  REPR                                                                                 DEV   INCREMENT
***********************************************************************************************************


   4  MAY      4.3  0.0       .016  .026  .008  .030  .011  .030  .020  .029  .021  .023
                             .024  .019  .028  .039  .029  .039  .025  .035  .030  .011   .025 .0067
                                                                                                         .020
  22  MAY      4.7  0.0       .046  .034  .042  .016  .063  .028  .057  .019  .017  .050
                             .032  .062  .040  .077  .039  .039  .079  .061  .052  .039   .045 .0182
                                                                                                         .018
   4 JUNE      4.8  0.0       .034  .060  .051  .032  .057  .053  .079  .039  .055  .034
                             .077  .070  .107  .096  .076  .060  .065  .052  .076  .062   .063 .0203
                                                                                                         .041
  18 JUNE      5.4  0.0       .039  .089  .158  .080  .050  .073  .075  .116  .039  .039
                             .122  .183  .097  .080  .127  .042  .133  .117  .278  .138   .104 .0586
                                                                                                        -.031
   2 JULY      5.8 14.3       .050  .035  .081  .087  .070  .108  .076  .077  .093  .080
                             .064  .079  .046  .099  .088  .071  .062  .065  .101  .031   .073 .0211
                                                                                                         .013
  16 JULY      5.9 14.8       .094  .083  .141  .083  .047  .044  .057  .074  .079  .066
                             .086  .116  .126  .129  .043  .106  .080  .090  .054  .127   .086 .0301
                                                                                                        -.002
   1  AUG      6.3 15.0       .072  .110  .086  .097  .138  .064  .096  .048  .064  .161
                             .125  .136  .097  .051  .084  .032  .066  .058  .036  .045   .084 .0389
                                                                                                        -.005
  14  AUG      6.7 15.3       .040  .156  .077  .044  .178  .082  .074  .063  .064  .098
                             .095  .056  .081  .074  .045  .102  .055  .060  .072  .070   .079 .0347
                                                                                                        -.007
  30  AUG      6.9 16.5       .065  .062  .047  .086  .097  .034  .091  .097  .043  .080
                             .041  .055  .045  .097  .164  .081  .056  .078  .055  .080   .073 .0247
                                                                                                         .024
  20 SEPT      6.9 16.9       .069  .116  .062  .133  .077  .067  .092  .151  .082  .069
                             .123  .127  .061  .109  .119  .104  .044  .091  .095  .107   .097 .0270

                              0.0 = NOT RECORDED
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    STUDY AREA CEDAR MT.              AGROPYRON SPICATUM                      1980 VEGETATIVE
               ----------            ----------------------

   DATE      PHENOLOGY                        PRODUCTIVITY CLIPPINGS                       MEAN   STD    GROWTH
              VEG  REPR                                                                           DEV   INCREMENT
*******************************************************************************************************************

  26  APR     3.7  0.0     .013  .016  .012  .006  .012  .010  .004  .013  .010  .014
                           .013  .013  .010  .011  .014  .008  .008  .014  .007  .007   .011 .0036
                                                                                                          .005
   2  MAY     4.6  0.0     .003  .010  .012  .015  .011  .006  .009  .013  .012  .015
                           .012  .021  .015  .015  .024  .006  .009  .069  .090  .003   .016 .0182
                                                                                                          .019
  19  MAY     5.1  0.0     .035  .018  .039  .032  .029  .069  .055  .025  .037  .050
                           .023  .061  .058  .020  .035  .023  .029  .021  .012  .039   .034 .0151
                                                                                                          .010
   2 JUNE     5.6  0.0     .055  .028  .037  .071  .052  .044  .077  .063  .049  .042
                           .018  .038  .066  .027  .017  .021  .051  .031  .060  .036   .044 .0177
                                                                                                          .059
  16 JUNE     5.8  9.9     .084  .143  .102  .080  .196  .087  .072  .098  .147  .126
                           .076  .108  .067  .094  .071  .130  .099  .066  .101  .090   .103 .0318
                                                                                                          .030
  30 JUNE     5.9 11.2     .088  .120  .153  .104  .136  .178  .185  .134  .117  .256
                           .269  .207  .088  .089  .089  .108  .098  .087  .069  .090   .133 .0577
                                                                                                          .048
  14 JULY     5.9 11.5     .180  .265  .357  .276  .244  .181  .236  .108  .229  .077
                           .174  .211  .085  .096  .166  .144  .135  .115  .161  .182   .181 .0719
                                                                                                        -.001
  28 JULY     6.0 15.8     .231  .235  .216  .194  .162  .179  .086  .334  .184  .219
                           .114  .203  .143  .194  .106  .320  .070  .165  .094  .154   .180 .0705
                                                                                                        -.018
  11  AUG     6.2 16.0     .196  .176  .124  .147  .094  .164  .154  .095  .099  .290
                           .319  .122  .239  .164  .185  .146  .174  .182  .064  .165   .162 .0645
                                                                                                        -.023
  30  AUG     6.4 16.7     .167  .106  .236  .355  .186  .099  .141  .187  .198  .101
                           .131  .075  .080  .192  .191  .128  .078  .145  .066  .225   .139 .0561
                                                                                                        -.046
  20 SEPT     6.5 16.0     .060  .038  .127  .093  .121  .145  .111  .093  .057  .093
                           .105  .106  .058  .049  .146  .042  .074  .060  .067  .133   .092 .0324

                           0.0 = NOT RECORDED
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     STUDY AREA NUMBER. #3             AGROPYRON SPICATUM                           [illegible] VEGETATIVE
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  DATE      PHENOLOGY                            PRODUCTIVITY CLIPPINGS                        MEAN   STD    GROWTH
             VEG  REPR                                                                                DEV    INCREMENT
*************************************************************************************************************************


 20  MAY     4.6  0.0      .026  .018  .016  .022  .017  .020  .049  .045  .024  .033
                           .037  .042  .024  .025  .037  .031  .027  .034  .023  .021    .029  .0097
                                                                                                         .031
 11 JUNE     5.8 10.6      .054  .045  .053  .099  .068  .059  .076  .049  .058  .054
                           .065  .083  .060  .017  .025  .050  .092  .067  .053  .000    .060  .0209
                                                                                                         .029
 17 JUNE     5.9 10.9      .123  .128  .114  .062  .132  .114  .088  .099  .073  .136
                           .087  .050  .097  .055  .045  .097  .108  .041  .050  .098    .090  .0308
                                                                                                         .024
  1 JULY     5.9 12.6      .107  .087  .179  .257  .108  .097  .150  .112  .095  .067
                           .081  .062  .095  .124  .078  .156  .075  .126  .146  .166    .118  .0470
                                                                                                        -.019
 15 JULY     6.2 16.9      .069  .060  .050  .055  .039  .035  .134  .151  .091  .065
                           .066  .086  .056  .096  .107  .115  .067  .117  .081  .440    .099  .0861
                                                                                                         .023
  4  AUG     6.4 16.4      .153  .146  .115  .054  .109  .077  .124  .111  .171  .098
                           .143  .096  .157  .116  .136  .152  .170  .120  .086  .102    .122  .0316
                                                                                                        -.023
 12  AUG     6.4 16.9      .159  .145  .134  .104  .105  .063  .107  .056  .091  .057
                           .058  .071  .153  .124  .106  .057  .105  .072  .114  .096    .099  .0344
                                                                                                         [illegible]
 31  AUG     6.5 18.0      .061  .103  .042  .093  .076  .109  .115  .103  .095  .115
                           .091  .097  .094  .097  .093  .075  .144  .213  .143  .154    [illegible]  .0371
                                                                                                        [illegible]
 20 SEPT     6.5 18.0      .074  .045  .141  .116  .117  .086  .050  .090  .033  .099
                           .078  .055  .085  .128  .081  .097  .272  .108  .053  .067    .094  .0505

                           0.0 = NOT RECORDED
     STUDY AREA HORSE CK.                    AGROPYRON SPICATUM                              1980 VEGETATIVE
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   DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                               MEAN  STD    GROWTH
              VEG  REPR                                                                                    DEV   INCREMENT
************************************************************************************************************************


  26  APR      4.5  0.0       .050  .042  .024  .051  .056  .023  .013  .016  .036  .069
                              .034  .033  .057  .037  .027  .025  .016  .016  .011  .034   .034 .0165
                                                                                                                 .007
   3  MAY      5.2  0.0       .018  .031  .060  .063  .027  .041  .026  .039  .025  .073
                              .035  .034  .034  .050  .041  .055  .060  .013  .028  .053   .040 .0205
                                                                                                                 .015
  24  MAY      5.3  0.0       .041  .074  .044  .062  .066  .103  .045  .047  .051  .047
                              .036  .055  .035  .050  .037  .044  .035  .033  .103  .065   .056 .0224
                                                                                                                 .001
   6 JUNE      5.7  0.0       .053  .063  .063  .066  .052  .025  .094  .038  .066  .068
                              .060  .050  .026  .031  .061  .069  .066  .065  .057 0.000   .056 .0169

                               0.0 = NOT RECORDED
     STUDY AREA OWL DRAW                    AGROPYRON SPICATUM                        1968 VEGETATION
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    DATE     PHENOLOGY                          PRODUCTIVITY CLIPPINGS                           MEAN   STD      GROWTH
              VEG  REPR                                                                                DEV    INCREMENT
*******************************************************************************************************************

   4  MAY     4.7  0.0       .017  .051  .037  .027  .023  .022  .022  .019  .014  .025
                             .035  .016  .014  .018  .025  .025  .026  .041  .044  .031   .026 [illegible]
                                                                                                                  .043
  25  MAY     5.2  0.0       .064  .039  .089  .050  .059  .111  .143  .084  .098  .067
                             .084  .117  .045  .073  .029  .045  .061  .029  .036  .062   .070 .0314
                                                                                                                  .007
   2 JUNE     5.6  9.3       .054  .080  .044  .031  .079  .068  .049  .083  .084  .088
                             .040  .070  .118  .081  .064  .072  .136  .081  .090  .125   .077 .0272
                                                                                                                  .011
  18 JUNE     5.3 10.4       .113  .087  .062  .092  .056  .175  .200  .060  .066  .061
                             .032  .139  .034  .036  .045  .072  .075  .087  .143  .114   .088 .0468
                                                                                                                 -.021
  30 JUNE     5.5 12.3       .067  .068  .127  .071  .064  .089  .048  .117  .051  .059
                             .044  .072  .073  .037  .059  .034  .061  .076  .056  .063   .067 .0232
                                                                                                                 -.009
  13 JULY     5.6 14.0       .040  .144  .054  .071  .062  .081  .056  .061  .035  .040
                             .051  .042  .030  .023  .025  .063  .072  .051  .036  .060   .057 .0271
                                                                                                                  .003
  28 JULY     6.4 15.4       .031  .048  .035  .010  .092  .057  .044  .075  .023  .094
                             .074  .051  .076  .092  .077  .059  .057  .093  .054  .077   .060 .0239
                                                                                                                  [illegible]
  26  AUG     6.7 16.8       .071  .078  .094  .060  .056  .063  .107  .052  .114  .119
                             .029  .068  .085  .060  .079  .053  .034  .039  .064  .147   .069 .0306
                                                                                                                  [illegible]
   5 SEPT     6.8 16.9       .121  .059  .110  .071  .044  .068  .076  .058  .056  .069
                             .056  .049  .067  .142  .039  .077  .067  .089  .096  .087   [illegible] [illegible]
                                                                                                                 -.03[illegible]
  21 SEPT     6.9 18.0       .031  .039  .034  .054  .036  .120  .023  .026  .047  .047
                             .072  .030  .063  .035  .017  .073  .020  .019  .043  .036   .041 .0220

                             0.0 = NOT RECORDED
    STUDY AREA RED WASH 2                    AGROPYRON SPICATUM                              1980 VEGETATIVE
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   DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                               MEAN   STD     GROWTH
              VEG  REPR                                                                                     DEV    INCREMENT
****************************************************************************************************************************


   2  MAY    4.4  0.0      .011  .011  .008  .005  .011  .006  .013  .013  .006  .009
                           .004  .009  .008  .013  .008  .008  .006  .008  .007  .008   .009 .0027
                                                                                                                   .018
  26  MAY    4.5  0.0      .047  .039  .028  .034  .027  .021  .034  .024  .017  .029
                           .023  .039  .024  .024  .029  .022  .013  .028  .026  .019   .026 .0060
                                                                                                                   .020
   2 JUNE    5.2  0.0      .047  .031  .035  .070  .046  .055  .031  .043  .023  .073
                           .051  .042  .048  .043  .068  .047  .039  .055  .036  .035   .046 .0133
                                                                                                                   .049
  16 JUNE    5.8 10.1      .098  .076  .046  .096  .134  .125  .131  .152  .074  .067
                           .121  .073  .091  .065  .120  .080  .093  .069  .086  .104   .095 .0278
                                                                                                                   .115
  30 JUNE    5.9 11.5      .128  .231  .140  .222  .205  .203  .178  .254  .238  .293
                           .207  .242  .233  .163 0.000 0.000 0.000 0.000 0.000 0.000   .210 .0453
                                                                                                                  -.029
  14 JULY    5.9 14.7      .199  .169  .126  .153  .143  .081  .251  .310  .239  .094
                           .201  .130  .103  .226  .161  .186  .178  .264  .174  .205   .181 .0595
                                                                                                                   .025
  28 JULY    5.9 16.3      .106  .194  .451  .211  .324  .227  .271  .140  .128  .114
                           .222  .082  .274  .168  .087  .246  .229  .289  .166  .192   .206 .0901
                                                                                                                  -.030
  11  AUG    6.2 16.4      .149  .262  .099  .301  .144  .248  .098  .141  .126  .317
                           .129  .208  .218  .201  .105  .125  .212  .165  .158  .069   .176 .0696
                                                                                                                  -.011
  30  AUG    6.4 16.5      .182  .076  .174  .133  .078  .193  .268  .230  .208  .141
                           .126  .193  .205  .197  .237  .186  .086  .094  .138  .148   .164 .0557
                                                                                                                  -.014
  19 SEPT    6.5 16.5      .106  .190  .081  .137  .170  .018  .094  .107  .233  .159
                           .109  .112  .189  .144  .280  .164  .092  .259  .211  .103   .150 .0618

                           0.0 = NOT RECORDED
   STUDY AREA HORSE CK                      ARTEMISIA NOVA                                         1980  VEGETATIVE
              ---------                    -------------------

  DATE      PHENOLOGY                       PRODUCTIVITY CLIPPINGS                                MEAN  STD    GROWTH
              VEG  REPR                                                                                 DEV    INCREMENT
***************************************************************************************************************


 26 APR       2.8  0.0        .030  .023  .053  .036  .036  .029  .027  .033  .031  .026
                              .039  .049  .029  .040  .052  .047  .040  .042  .034  .036   .037 .0087
                                                                                                                -.010
 3 MAY        2.8  0.0        .031  .032  .016  .023  .052  .034  .022  .034  .041  .030
                              .023  .019  .053  .013  .014  .008  .014  .012  .045  .014   .027 .0136
                                                                                                                -.001
 24 MAY       3.6  0.0        .030  .022  .016  .033  .027  .028  .023  .026  .028  .013
                              .026  .028  .022  .022  .032  .037  .040  .021  .021  .014   .025 .0071
                                                                                                                -.013
 6 JUNE       3.7  0.0        .015  .016  .011  .016  .011  .014  .012  .007  .014  .015
                              .019  .011  .015  .016  .008  .003  .008  .009  .010  .015   .012 .0039
                                                                                                                -.002
 20 JUNE      3.9  9.1        .006  .013  .012  .008  .008  .010  .009  .013  .006  .008
                              .017  .011  .012  .004  .013  .006  .019  .014  .009  .007   .010 .0039
                                                                                                                 .006
 3 JULY       0.0  0.0        .015  .019  .016  .021  .011  .013  .019  .018  .018  .022
                              .012  .013  .008  .019  .013  .014  .017  .013  .018  .021   .016 .0038
                                                                                                                 .003
 17 JULY      4.1  9.4        .032  .012  .016  .034  .019  .025  .015  .022  .041  .012
                              .023  .014  .018  .013  .013  .008  .027  .011  .012  .020   .019 .0088
                                                                                                                 .019
 30 JULY      4.7  9.7        .039  .040  .044  .094  .043  .019  .060  .036  .035  .033
                              .017  .040  .017  .061  .062  .019  .019  .023  .044  .025   .038 .0195
                                                                                                                -.018
 29 AUG       5.4 10.1        .015  .013  .008  .009  .014  .016  .009  .011  .014  .008
                              .007  .024  .030  .117  .013  .016  .022  .018  .018  .037   .021 .0239
                                                                                                                 .000
 20 SEPT      5.7 11.7        .010  .021  .012  .007  .044  .011  .017  .019  .011  .048
                              .052  .026  .013  .017  .043  .008  .010  .023  .018  .013   .021 .0141

                               0.0 = NOT RECORDED
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     STUDY AREA OWL DRAW                    ARTEMISIA NOVA                        1980  VEGETATIVE
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   DATE     PHENOLOGY                       PRODUCTIVITY CLIPPINGS                        MEAN  STD    GROWTH
             VEG  REPR                                                                        DEV    INCREMENT
*****************************************************************************************************************


  25 MAY      3.6  0.0       .009  .009  .012  .017  .007  .019  .012  .017  .021  .017
                             .011  .014  .016  .007  .014  .002  .009  .010 0.000 0.000   .012 .0049
                                                                                                       .006
  2 JUNE      3.7  0.0       .030  .013  .024  .017  .016  .008  .031  .011  .016  .011
                             .015  .017  .010  .010  .021  .022  .015  .027  .030  .016   .018 .0072
                                                                                                      -.006
  18 JUNE     3.6  0.0       .014  .017  .008  .013  .009  .011  .021  .013  .004  .005
                             .017  .021  .007  .015  .020  .008  .012  .006  .012  .008   .012 .0052
                                                                                                       .005
  30 JUNE     3.8  0.0       .016  .019  .013  .029  .007  .018  .012  .019  .019  .015
                             .013  .019  .012  .027  .008  .019  .026  .028  .005  .027   .018 .0072
                                                                                                      -.008
  13 JULY     4.0  0.0       .010  .007  .005  .005  .012  .009  .010  .011  .002  .012
                             .022  .006  .008  .013  .012  .006  .009  .013  .013  .011   .010 .0043
                                                                                                       .011
  28 JULY     4.4  9.3       .019  .012  .010  .017  .015  .007  .040  .011  .011  .018
                             .039  .033  .018  .021  .024  .020  .027  .025  .020  .032   .021 .0094
                                                                                                      -.012
  26 AUG      4.5  9.6       .004  .010  .006  .010  .002  .004  .006  .006  .011  .005
                             .007  .019  .007  .024  .007  .005  .007  .009  .015 0.000   .009 .0055
                                                                                                       .014
  5 SEPT      4.9  9.9       .016  .022  .012  .020  .025  .021  .024  .011  .017  .059
                             .025  .024  .026  .031  .024  .018  .012  .021  .028  .022   .023 .0101
                                                                                                      -.012
  21 SEPT     5.0 10.3       .039  .004  .006  .004  .006  .005  .016  .008  .005  .013
                             .010  .006  .006  .010  .008  .008  .005  .041  .013 0.000   .011 .0107

                             0.0 = NOT RECORDED
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    STUDY AREA SWEETWATER                 ARTEMISIA NOVA                          1980  VEGETATIVE
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   DATE      PHENOLOGY                     PRODUCTIVITY CLIPPINGS                  MEAN  STD    GROWTH
              VEG  REPR                                                                  DEV    INCREMENT
*************************************************************************************************************


 22 MAY     3.4  0.0    .002  .006  .011  .010  .009  .009  .012  .004  .008  .008
                        .006  .005  .003  .018  .008  .003  .009  .007  .008  .005  .008 .0037
                                                                                                  .006
 4 JUNE     3.0  0.0    .007  .011  .009  .020  .015  .015  .020  .014  .006  .012
                        .013  .014  .014  .008  .005  .016  .024  .015  .017  .019  .014 .0050
                                                                                                 -.008
 18 JUNE    4.1  0.0    .002  .002  .007  .004  .008  .004  .006  .009  .004  .012
                        .008  .008  .005  .006  .005  .006  .006  .004  .008  .005  .006 .0024
                                                                                                  .004
 2 JULY     3.8  0.0    .014  .011  .013  .007  .005  .009  .010  .010  .005  .009
                        .008  .016  .007  .009  .009  .007  .014  .011  .010  .013  .010 .0030
                                                                                                  .019
 16 JULY    4.0  9.1    .009  .032  .057  .019  .026  .038  .029  .034  .028  .031
                        .047  .030  .011  .023  .016  .025  .034  .039  .023  .017  .028 .0117
                                                                                                 -.009
 30 JULY    4.2  9.2    .012  .010  .015  .012  .030  .025  .015  .020  .017  .016
                        .015  .022  .019  .015  .026  .019  .023  .035  .019  .013  .019 .0064
                                                                                                  .007
 14 AUG     4.4  9.7    .026  .066  .015  .013  .040  .028  .039  .015  .017  .026
                        .023  .013  .018  .025  .017  .047  .026  .014  .016  .032  .026 .0136
                                                                                                 -.003
 29 AUG     4.6  9.8    .024  .021  .018  .026  .026  .023  .024  .024  .013  .017
                        .026  .012  .015  .028  .016  .019  .028  .029  .022  .037  .023 .0062
                                                                                                  .016
 20 SEPT    4.9 10.2    .080  .060  .051  .025  .028  .035  .045  .037  .038  .028
                        .080  .039  .022  .033  .031  .016  .041  .031  .036  .013  .038 .0179

                          0.0 = NOT RECORDED
   STUDY AREA HORSE CK               ARTEMISIA NOVA                              1980  REPRODUCTIVE
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  DATE      PHENOLOGY                        PRODUCTIVITY CLIPPINGS                         MEAN  STD    GROWTH
             VEG  REPR                                                                            DEV   INCREMENT
*****************************************************************************************************************


  3 JULY    19.0    .0      .047  .095  .019  .168  .037  .130  .079  .148  .145  .021
                            .176  .080  .127  .056  .038  .064  .251  .072  .069  .070  .095 .0602
                                                                                                           -.014
 17 JULY      .0    .1      .085  .066  .130  .080  .069  .089  .069  .043  .134  .060
                            .074  .036  .076  .137  .071  .127  .079  .059  .079  .047  .080 .0297
                                                                                                            .015
 30 JULY     0.0700.0       .111  .150  .101  .022  .090  .045  .190  .123  .056  .067
                            .183  .068  .090  .144  .076  .070  .083  .044  .097  .093  .095 .0447
                                                                                                            .045
 29 AUG    150.0 46.0       .486  .068 0.000  .057  .047  .078  .023  .321  .105  .059
                            .111  .195  .237  .063  .094  .063 0.000 0.000 0.000  .231  .140 .1249
                                                                                                           -.042
 20 SEPT      .0    .0      .052  .051  .055  .075  .115  .053  .089  .044  .145  .168
                            .049  .097  .121  .155  .122  .110  .042  .167  .184  .070  .098 .0471

                             0.0 = NOT RECORDED
   STUDY AREA OWL DRAW                 ARTEMISIA NOVA                           1980  REPRODUCTIVE
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  DATE      PHENOLOGY                        PRODUCTIVITY CLIPPINGS                        MEAN  STD    GROWTH
             VEG  REPR                                                                           DEV   INCREMENT
*************************************************************************************************************

 30 JUNE     23.0    .0      .011  .065  .036  .036  .031  .034  .023  .038  .045  .104
                             .033  .028  .027  .089  .066  .033  .057  .053  .049  .074  .047 .0233
                                                                                                        -.001
 13 JULY       .0  0.0       .029  .029  .037  .057  .044  .037  .085  .053 0.000 0.000
                             .024  .037  .055  .037  .023  .041  .054  .031  .066  .081  .046 .0182
                                                                                                        -.011
 28 JULY      0.0300.0       .026  .072  .026  .025  .025  .020  .008  .034  .027  .049
                             .029  .027  .070  .020  .047  .026  .047  .031  .023  .055  .034 .0169
                                                                                                         .056
 26 AUG     330.0 34.0       .079  .066  .122  .140  .074  .128  .057  .102  .105  .094
                             .040  .046  .084  .118  .110  .107  .097  .102  .041  .086  .090 .0290
                                                                                                        -.033
  5 SEPT       .0    .0      .044  .046  .027  .034  .064  .103  .021  .139  .045  .026
                             .062  .053  .045  .039  .029  .070  .103  .040  .032  .111  .057 .0328
                                                                                                         .002
  9 SEPT    600.0150.0       .024  .107  .090  .064  .035  .088  .089  .054  .034  .041
                             .058  .046  .049  .050  .041  .065 0.000 0.000 0.000 0.000  .058 .0238

                              0.0 = NOT RECORDED
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        STUDY AREA SWEETWATER                 ARTEMISIA NOVA                            1980  REPRODUCTIVE
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      DATE    PHENOLOGY                       PRODUCTIVITY CLIPPINGS                      MEAN  STD   GROWTH
               VEG  REPR                                                                        DEV   INCREMENT
**************************************************************************************************************


     2 JULY    26.0   .0     .012  .045  .032  .046  .023  .035  .024  .031  .022  .086
                             .040  .053  .056  .046  .054  .036  .019  .035  .026  .046   .038 .0168
                                                                                                        .008
    16 JULY      .0  0.0     .061  .031  .040  .017  .059  .019  .021  .100  .009  .029
                             .058  .048  .040  .030  .067  .091  .086  .046  .021  .049   .047 .0261
                                                                                                        .035
    30 JULY     0.0700.0     .082  .074  .066  .054  .103  .080  .097  .075  .067  .050
                             .044  .088  .142  .077  .096  .103  .113  .058  .078  .077   .081 .0234
                                                                                                       -.020
    14 AUG    280.0 16.0     .070  .073  .021  .051  .146  .098  .099  .039  .048  .084
                             .086  .072  .017  .082  .037  .052  .047  .028  .017  .060   .061 .0326
                                                                                                        .065
    29 AUG       .0   .0     .240  .205  .094  .074  .124  .109  .089  .162  .113  .110
                             .071  .184  .112  .104  .149  .130  .103  .160  .136  .056   .126 .0463
                                                                                                       -.045
    20 SEPT   500.0280.0     .080  .201  .091  .040  .097  .046  .035  .060  .065  .200
                             .049  .165  .088  .057  .090  .063  .043  .046  .047  .053   .081 .0504

                              0.0 = NOT RECORDED
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   STUDY AREA BUD KIMBAL                ARTEMISIA TRIDENTATA                     1980 VEGETATIVE
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  DATE     PHENOLOGY                    PRODUCTIVITY CLIPPINGS                          MEAN  STD   GROWTH
            VEG  REPR                                                                         DEV   INCREMENT
**********************************************************************************************


 27 APR     2.9  0.0     .007  .052  .026  .044  .053  .036  .049  .045  .021  .029
                         .045  .031  .028  .022  .032  .030  .032  .048  .031  .045  .035 .0120
                                                                                                   .006
  3 MAY     3.0  0.0     .049  .086  .067  .015  .027  .082  .010  .020  .049  .042
                         .024  .037  .043  .028  .028  .025  .035  .033  .064  .059  .041 .0213
                                                                                                  -.022
  4 JUNE    3.6  0.0     .026  .022  .013  .020  .012  .013  .020  .014  .025  .021
                         .011  .027  .024  .009  .016  .023  .012  .016  .045  .006  .019 .0087
                                                                                                  -.005
 19 JUNE    4.1  9.1     .012  .034  .011  .004  .021  .011  .023  .010  .017  .011
                         .021  .009  .005  .006  .011  .006  .011  .014  .017  .020  .014 .0074
                                                                                                   .004
  2 JULY    4.1  9.0     .026  .016  .028  .006  .010  .016  .008  .019  .018  .009
                         .029  .022  .012  .009  .023  .030  .024  .035  .018  .006  .018 .0087
                                                                                                   .000
 14 JULY    4.6  9.5     .009  .007  .023  .013  .027  .021  .014  .009  .010  .027
                         .008  .008  .024  .013  .021  .020  .015  .070  .012 0.000  .016 .0141
                                                                                                   .006
 29 JULY    4.6  9.5     .028  .027  .033  .016  .019  .024  .018  .046  .021  .040
                         .027  .026  .029  .013  .013  .030  .013  .025  .025  .016  .024 .0088
                                                                                                  -.005
  6 SEPT    5.1  9.9     .028  .010  .011  .016  .017  .021  .026  .034  .014  .009
                         .027  .015  .017  .016  .027  .012  .034  .008  .023  .016  .019 .0080
                                                                                                   .006
 21 SEPT    5.5 11.3     .072  .027  .019  .019  .015  .033  .018  .014  .019  .008
                         .027  .018  .022  .042  .027  .016  .020  .037  .031  .022  .025 .0138

                           0.0 = NOT RECORDED
  STUDY AREA CEDAR MTN.               ARTEMISIA TRIDENTATA                              1980 VEGETATIVE
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  DATE      PHENOLOGY                         PRODUCTIVITY CLIPPINGS                                  MEAN   STD    GROWTH
             VEG  REPR                                                                                       DEV   INCREMENT
*******************************************************************************************************************************

  2 JUNE     3.1  0.0      .006  .008  .007  .012  .008  .014  .010  .007  .006  .006
                           .011  .007  .005  .006  .017  .013  .014  .008  .008  .007   .009 .0034
                                                                                                            .007
 16 JUNE     3.6  0.0      .011  .011  .007  .004  .013  .017  .021  .013  .013  .012
                           .011  .017  .038  .014  .012  .013  .018  .024  .024  .037   .017 .0087
                                                                                                           -.003
 30 JUNE     3.7  0.0      .004  .012  .009  .012  .010  .012  .009  .019  .016  .033
                           .010  .008  .013  .010  .016  .021  .011  .009  .010  .019   .013 .0063
                                                                                                           -.003
 14 JULY     4.2  0.0      .010  .013  .009  .017  .011  .011  .013  .013  .019  .006
                           .009  .008  .013  .007  .011  .006  .006  .020  .008  .003   .011 .0045
                                                                                                            .002
 28 JULY     4.2  0.0      .012  .014  .015  .007  .010  .014  .016  .016  .014  .017
                           .020  .005  .014  .006  .018  .012  .008  .009  .011  .012   .013 .0041
                                                                                                           -.001
 11 AUG      4.2  9.3      .078  .017  .007  .004  .006  .006  .004  .011  .006  .016
                           .005  .005  .005  .017  .005  .009  .004  .007  .008  .003   .011 .0163
                                                                                                            .008
 30 AUG      4.3  9.8      .008  .005  .009  .005  .004  .006  .004  .247  .014  .005
                           .012  .005  .008  .015  .005  .006  .006  .004  .013  .010   .020 .0537
                                                                                                           -.010
 20 SEPT     4.6  9.8      .013  .005  .005  .013  .008  .011  .010  .005  .008  .005
                           .019  .010  .021  .008  .005  .008  .009  .010  .009  .006   .009 .0044

                            0.0 = NOT RECORDED
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    STUDY AREA CUMBER. 3              ARTEMISIA TRIDENTATA                       1980  VEGETATIVE
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  DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                        MEAN  STD    GROWTH
             VEG  REPR                                                                              DEV    INCREMENT
*******************************************************************************************************************

 31 APR      4.0  0.0      .007  .006  .006  .004  .009  .009  .009  .009  .012  .011
                           .007  .010  .016  .009  .014  .014  .021  .010  .012  .006   .010 .0040
                                                                                                            .010
 20 MAY      4.1  0.0      .022  .014  .024  .017  .016  .007  .022  .014  .022  .023
                           .016  .031  .016  .024  .028  .015  .020  .010  .006  .045   .020 .0087
                                                                                                           -.009
 11 JUNE     4.2  9.2      .009  .012  .009  .016  .004  .020  .010  .008  .016  .007
                           .019  .006  .011  .010  .009  .015  .011  .009  .009  .006   .011 .0045
                                                                                                           -.001
 17 JUNE     4.4  9.3      .002  .013  .006  .009  .013  .013  .006  .010  .016  .005
                           .013  .008  .016  .009  .010  .009  .008  .011  .008  .014   .010 .0037
                                                                                                           -.001
  1 JULY     4.5  9.7      .004  .008  .005  .011  .004  .005  .007  .011  .012  .009
                           .013  .006  .012  .004  .014  .009  .018  .004  .006  .013   .009 .0041
                                                                                                            .043
 15 JULY     4.6  9.8      .078  .030  .086  .047  .050  .042  .074  .032  .066  .047
                           .012  .041  .061  .086  .020  .037  .077  .049  .026  .074   .052 .0224
                                                                                                           -.038
  4 AUG      4.7  9.9      .025  .014  .021  .010  .010  .012  .012  .012  .008  .021
                           .016  .010  .011  .009  .006  .013  .026  .020  .009  .011   .014 .0058
                                                                                                            .003
 12 AUG      5.4 11.0      .011  .014  .016  .016  .018  .021  .021  .016  .010  .014
                           .027  .020  .027  .019  .017  .008  .011  .012  .018  .016   .017 .0051
                                                                                                           -.005
 20 SEPT     0.0  0.0      .015  .017  .007  .008  .012  .005  .015  .012  .009  .014
                           .009  .012  .012  .012  .016  .008  .009  .011  .009  .012   .011 .0032

                             0.0 = NOT RECORDED
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         STUDY AREA DEMER                      ARTEMISIA TRIDENTATA                     1980  VEGETATIVE
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       DATE      PHENOLOGY                     PRODUCTIVITY CLIPPINGS                        MEAN   STD    GROWTH
                  VEG  REPR                                                                         DEV   INCREMENT
**************************************************************************************************************

     27 APR       3.1  0.0        .037  .035  .014  .052  .061  .026  .019  .034  .039  .006
                                  .023  .034  .025  .076  .051  .021  .034  .023  .066  .050  .036 .0182
                                                                                                            .011
      3 MAY       3.2  0.0        .017  .023  .037  .041  .087  .038  .046  .036  .044  .078
                                  .055  .038  .034  .053  .030  .055  .082  .099  .033  .028  .048 .0224
                                                                                                           -.015
     23 MAY       3.8  0.0        .044  .049  .043  .031  .022  .026  .026  .016  .065  .015
                                  .037  .048  .040  .049  .029  .029  .024  .026  .023  .015  .033 .0135
                                                                                                           -.010
      4 JUNE      3.8  0.0        .025  .030  .014  .031  .030  .015  .022  .017  .019  .026
                                  .021  .025  .026  .032  .017  .020  .017  .021  .027  .020  .023 .0055
                                                                                                           -.007
     19 JUNE      4.2  9.1        .011  .016  .017  .019  .014  .019  .016  .021  .024  .021
                                  .025  .006  .018  .020  .010  .013  .006  .008  .013  .009  .015 .0057
                                                                                                            .013
      2 JULY      4.2  9.1        .028  .018  .019  .019  .017  .037  .016  .034  .077  .026
                                  .053  .026  .018  .030  .020  .048  .014  .028  .019  .011  .028 .0159
                                                                                                           -.015
     15 JULY      4.6  9.4        .010  .022  .013  .009  .021  .014  .007  .012  .009  .009
                                  .017  .014  .016  .007  .004  .014  .012  .014  .009  .027  .013 .0056
                                                                                                            .067
     28 JULY      4.6  9.4        .026  .068  .037  .063  .040  .053  .076  .088  .066  .170
                                  .091  .087  .043  .031  .060  .087  .061  .076  .169  .200  .080 .0476
                                                                                                           -.042
      6 SEPT      4.8  9.6        .043  .099  .015  .029  .048  .037  .033  .035  .051  .026
                                  .052  .018  .064  .026  .026  .024  .033  .035  .015  .041  .038 .0193
                                                                                                           -.006
     20 SEPT      5.1 10.6        .029  .044  .010  .024  .019  .015  .024  .026  .035  .021
                                  .068  .030  .071  .039  .028  .039  .018  .036  .010  .037  .031 .0163

                                  0.0 = NOT RECORDED
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    STUDY AREA FARSON                  ARTEMISIA TRIDENTATA                       1980  VEGETATIVE
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   DATE     PHENOLOGY                  PRODUCTIVITY CLIPPINGS                           MEAN  STD   GROWTH
             VEG  REPR                                                                       DEV   INCREMENT
*****************************************************************************************************************

 21 MAY      3.2  0.0     .027  .024  .036  .024  .028  .021  .020  .053  .028  .036
                          .047  .031  .016  .070  .054  .034  .014  .033  .016  .022  .032 .0145
                                                                                                     -.022
 3 JUNE      3.5  0.0     .005  .013  .014  .017  .009  .006  .010  .009  .008  .006
                          .004  .014  .006  .012  .008  .012  .005  .003  .014  .010  .009 .0039
                                                                                                      .011
 17 JUNE     3.6  0.0     .019  .022  .021  .023  .024  .020  .012  .018  .008  .019
                          .011  .021  .032  .044  .029  .022  .008  .024  .010  .008  .020 .0090
                                                                                                     -.010
 1 JULY      3.9  0.0     .012  .012  .011  .013  .009  .013  .009  .007  .008  .007
                          .006  .009  .010  .011  .013  .012  .009  .009  .008  .007  .010 .0022
                                                                                                      .014
 15 JULY     3.9  9.1     .035  .023  .026  .020  .019  .011  .013  .015  .034  .031
                          .021  .017  .016  .026  .026  .064  .007  .017  .020  .031  .024 .0122
                                                                                                     -.001
 28 JULY     4.1  9.2     .026  .022  .026  .015  .040  .020  .019  .019  .012  .026
                          .018  .013  .017  .027  .029  .048  .018  .021  .025  .018  .023 .0087
                                                                                                     -.014
 13 AUG      4.6  9.7     .014  .012  .009  .017  .011  .008  .008  .010  .006  .006
                          .011  .009  .007  .009  .007  .008  .011  .007  .007  .007  .009 .0028
                                                                                                      .000
 31 AUG      4.6  9.5     .004  .009  .007  .005  .009  .017  .006  .007  .013  .005
                          .007  .009  .009  .011  .009  .011  .013  .018  .007  .011  .009 .0038
                                                                                                     -.001
 21 SEPT     4.6  9.8     .006  .007  .005  .008  .008  .007  .007  .009  .012  .008
                          .007  .012  .011  .007  .011  .009  .005  .009  .008  .005  .008 .0022

                          0.0 = NOT RECORDED
   STUDY AREA  HORSE CK                    ARTEMISIA TRIDENTATA                       1980 VEGETATIVE
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  DATE      PHENOLOGY                     PRODUCTIVITY CLIPPINGS                        MEAN  STD   GROWTH
             VEG  REPR                                                                       DEV   INCREMENT
*********************************************************************************************************


 26 APR      4.1  9.6      .058  .067  .025  .058  .041  .058  .089  .041  .025  .067
                           .073  .060  .048  .043  .067  .046  .043  .052  .023  .051   .052 .0169
                                                                                                   -.015
 2 MAY       5.5  9.7      .024  .049  .030  .040  .022  .044  .032  .027  .042  .030
                           .022  .066  .037  .051  .030  .064  .049  .032  .028  .021   .037 .0134
                                                                                                   -.019
 24 MAY      4.8  9.7      .008  .011  .011  .039  .014  .016  .010  .024  .025  .016
                           .020  .018  .023  .014  .023  .039  .010  .011  .016  .022   .019 .0087
                                                                                                    .007
 6 JUNE      5.5 10.0      .031  .009  .043  .016  .011  .010  .023  .019  .009  .018
                           .033  .032  .051  .021  .037  .025  .049  .041  .012  .021   .026 .0134
                                                                                                   -.008
 20 JUNE     5.0  1.1      .017  .018  .017  .030  .011  .014  .010  .016  .016  .041
                           .008  .019  .017  .010  .012  .012  .022  .008  .030  .022   .018 .0083
                                                                                                   -.000
 3 JULY      0.0  0.0      .013  .016  .025  .016  .027  .013  .020  .015  .014  .032
                           .019  .019  .014  .021  .011  .014  .007  .010  .019  .018   .017 .0060
                                                                                                    .005
 17 JULY     0.0  0.0      .013  .028  .014  .019  .022  .017  .015  .030  .016  .026
                           .017  .037  .043  .027  .018  .017  .015  .017  .019  .033   .022 .0084
                                                                                                    .006
 30 JULY     0.0  0.0      .048  .009  .051  .027  .028  .011  .033  .016  .016  .014
                           .026  .032  .013  .043  .072  .023  .040  .023  .021  .017   .028 .0160
                                                                                                   -.010
 29 AUG      0.0  0.0      .015  .016  .013  .015  .013  .015  .017  .010  .010  .012
                           .031  .013  .022  .021  .013  .032  .020  .009  .018  .051   .018 .0099
                                                                                                    .003
 20 SEPT     0.0  0.0      .005  .034  .019  .022  .046  .030  .015  .031  .007  .018
                           .016  .035  .017  .013  .021  .015  .012  .017  .019  .029   .021 .0102

                            0.0 = NOT RECORDED
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STUDY AREA MESA ANT

ARTEMISIA TRIDENTATA

1980 VEGETATIVE

DATE	PHENOLOGY		PRODUCTIVITY CLIPPINGS										MEAN	STD DEV	GROWTH INCREMENT
	VEG	REPR													
21 MAY	3.4	0.0	.007	.009	.006	.012	.039	.019	.007	.021	.005	.011			
			.013	.019	.008	.022	.012	.008	.021	.007	.011	.023	.014	.0084	.001
3 JUNE	3.4	0.0	.009	.014	.031	.016	.019	.020	.012	.010	.023	.026			
			.015	.010	.015	.014	.009	.012	.011	.015	.007	.005	.015	.0065	-.010
17 JUNE	4.1	0.0	.006	.011	.008	.008	.002	.002	.001	.004	.001	.007			
			.003	.003	.002	.006	.002	.005	0.000	.004	.004	.005	.004	.0027	.005
1 JULY	3.8	0.0	.007	.008	.010	.012	.006	.010	.010	.012	.018	.005			
			.011	.011	.004	.009	.014	.009	.007	.004	.004	.010	.009	.0036	.002
15 JULY	4.2	9.5	.006	.008	.009	.020	.008	.011	.023	.009	.015	.017			
			.015	.011	.012	.014	.006	.003	.013	.010	.009	.009	.011	.0049	.009
29 JULY	4.1	9.7	.010	.009	.018	.017	.030	.022	.017	.024	.020	.026			
			.043	.042	.013	.006	.010	.030	.020	.019	.014	.012	.020	.0102	-.007
12 AUG	4.5	9.8	.004	.005	.006	.004	.008	.004	.005	.005	.004	.005			
			.020	.015	.025	.025	.022	.032	.026	.017	.018	0.000	.013	.0096	-.005
31 AUG	4.6	10.1	.005	.008	.009	.005	.007	.011	.010	.014	.006	.009			
			.012	.006	.006	.009	.012	.005	.004	.012	.011	.008	.006	.0029	-.001
21 SEPT	4.6	10.0	.008	.010	.009	.007	.011	.007	.006	.011	.011	.007			
			.006	.006	.007	.006	.005	.011	.008	.011	.004	0.000	.008	.0023	

0.0 = NOT RECORDED

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   STUDY AREA OWL DRAW                      ARTEMISIA TRIDENTATA                          1980  VEGETATIVE
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  DATE      PHENOLOGY                           PRODUCTIVITY CLIPPINGS                          MEAN   STD    GROWTH
             VEG  REPR                                                                                 DEV    INCREMENT
*******************************************************************************************************************


 25 MAY      3.6  0.0      .025  .014  .014  .010  .005  .008  .012  .020  .009  .005
                           .011  .012  .008  .010  .013  .007  .009  .010  .007  .006   .011 .0048
                                                                                                         .024
 2 JUNE      3.8  0.0      .038  .036  .035  .021  .044  .054  .041  .021  .024  .119
                           .020  .042  .013  .035  .030  .019  .030  .022  .033  .024   .035 .0223
                                                                                                        -.019
 18 JUNE     3.7  0.0      .017  .024  .010  .007  .008  .025  .010  .017  .016  .007
                           .011  .014  .013  .030  .021  .012  .030  .016  .027  .006   .016 .0077
                                                                                                         .017
 30 JUNE     3.9  0.0      .046  .053  .013  .079  .034  .027  .044  .012  .042  .015
                           .038  .034  .019  .020  .046  .007  .024  .019  .050  .036   .033 .0176
                                                                                                        -.019
 13 JULY     4.2  9.2      .019  .018  .017  .015  .022  .010  .013  .010  .007  .019
                           .010  .013  .017  .016  .009  .003  .007  .007  .022  .020   .014 .0056
                                                                                                         .023
 28 JULY     4.5  9.6      .030  .027  .018  .037  .030  .025  .068  .046  .022  .024
                           .068  .022  .035  .050  .055  .022  .038  .034  .045  .034   .036 .0147
                                                                                                         .011
 5 SEPT      4.6  9.7      .042  .014  .032  .023  .045  .029  .048  .061  .024  .035
                           .044  .060  .098  .039  .021  .039  .069  .088  .046  .084   .047 .0232
                                                                                                        -.026
 21 SEPT     4.9  9.8      .014  .011  .013  .021  .015  .024  .025  .033  .033  .015
                           .014  .028  .030  .019  .015  .033  .028  .017  .017  .020   .021 .0074

                            0.0 = NOT RECORDED
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STUDY AREA RED WASH

ARTEMISIA TRIDENTATA

1980 VEGETATIVE

DATE	PHENOLOGY VEG	PHENOLOGY REPR	PRODUCTIVITY CLIPPINGS										MEAN	STD DEV	GROWTH INCREMENT
26 MAY	3.4	0.0	.008	.012	.006	.030	.013	.015	.023	.030	.019	.043			
			.025	.040	.041	.022	.013	.033	.016	.009	.019	.031	.022	.0114	-.014
2 JUNE	3.5	0.0	.011	.008	.006	.005	.008	.006	.009	.009	.005	.015			
			.007	.007	.012	.011	.008	.006	.006	.006	.011	.014	.008	.0029	.002
16 JUNE	3.8	0.0	.012	.019	.020	.010	.005	.005	.008	.006	.014	.012			
			.014	.016	.012	.011	.011	.004	.008	.012	.009	.009	.011	.0044	.003
30 JUNE	4.0	0.0	.018	.016	.007	.007	.018	.016	.014	.011	.015	.021			
			.023	.010	.012	.020	.011	.013	.006	.010	.024	.010	.014	.0053	.017
14 JULY	4.2	9.1	.060	.023	.033	.044	.030	.027	.036	.021	.032	.024			
			.013	.047	.015	.022	.035	.023	.017	.061	.050	.011	.031	.0147	-.016
28 JULY	4.3	9.3	.015	.014	.009	.029	.014	.015	.012	.015	.021	.013			
			.037	.010	.014	.022	.012	.012	.005	.013	.009	.012	.015	.0073	-.006
11 AUG	4.5	9.6	.003	.008	.004	.007	.005	.006	.006	.006	.007	.016			
			.008	.018	.021	.012	.009	.008	.008	.010	0.000	0.000	.009	.0049	.004
30 AUG	4.6	9.8	.010	.011	.010	.012	.024	.004	.013	.011	.008	.007			
			.014	.019	.004	.034	.015	.013	.011	.016	.013	0.000	.013	.0069	.000
19 SEPT	4.7	10.0	.014	.013	.024	.015	.016	.013	.018	.009	.010	.009			
			.007	.016	.013	.013	.009	.002	.024	.015	.012	.019	.014	.0053	

0.0 = NOT RECORDED

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   STUDY AREA SHOSHONI 7               ARTEMISIA TRIDENTATA                          1980  VEGETATIVE
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     DATE      PHENOLOGY                       PRODUCTIVITY CLIPPINGS                               MEAN  STD     GROWTH
                 VEG  REPR                                                                                DEV     INCREMENT
****************************************************************************************************************************


   26 APR       3.2  0.0         .025   .019   .040   .023   .013   .024   .023   .034   .042   .024
                                 .019   .013   .020   .030   .022   .035   .032   .029   .025   .028   .026 .0079
                                                                                                                    .005
   2 MAY        3.4  0.0         .027   .023   .030   .029   .015   .053   .024   .025   .069   .035
                                 .024   .015   .017   .026   .022   .034   .030   .023   .027   .064   .031 .0147
                                                                                                                   -.005
   23 MAY       3.7  0.0         .020   .032   .024   .034   .030   .025   .010   .034   .030   .027
                                 .028   .031   .012   .032   .021   .035   .025   .018   .030   .029   .026 .0071
                                                                                                                   -.012
   5 JUNE       4.2  0.0         .014   .021   .013   .009   .016   .009   .009   .019   .016   .018
                                 .008   .008   .014   .020   .010   .031   .011   .013   .012   .019   .015 .0057
                                                                                                                   -.001
   18 JUNE      4.3  9.2         .011   .015   .013   .019   .010   .017   .016   .013   .015   .011
                                 .010   .011   .014   .012   .010   .007   .010   .019   .022   .017   .014 .0038
                                                                                                                    .003
   1 JULY       4.0  9.1         .009   .015   .018   .014   .015   .010   .025   .019   .017   .009
                                 .024   .014   .020   .025   .017   .021   .014   .017   .017   .014   .017 .0047
                                                                                                                   -.006
   16 JULY      4.2  9.1         .006   .004   .013   .012   .010   .006   .009   .017   .010   .006
                                 .014   .017   .018   .004   .016   .019   .009   .004   .016   .005   .011 .0052
                                                                                                                    .007
   30 JULY      4.4  9.4         .042   .047   .014   .026   .016   .041   .022   .025   .007   .006
                                 .009   .012   .009   .006   .016   .007   .006   .013   .015   .021   .018 .0126
                                                                                                                   -.008
   15 AUG       4.6  9.6         .006   .007   .010   .011   .007   .006   .004   .006   .006   .010
                                 .016   .016   .015   .011   .005   .009   .017   .016   .016   .011   .010 .0044
                                                                                                                    .022
   30 AUG       5.2 10.4         .036   .025   .024   .032   .051   .021   .040   .016   .044   .047
                                 .025   .037   .021   .044   .034   .034   .023   .033   .028 0.000   .032 .0098
                                                                                                                    .010
   21 SEPT      5.9 13.1         .034   .042   .075   .054   .022   .054   .050   .050   .025   .042
                                 .033   .076   .031   .035   .033   .060   .030   .024   .044   .030   .042 .0157

                                  0.0 = NOT RECORDED
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  STUDY AREA SWEETWATER                ARTEMISIA TRIDENTATA                          1980  VEGETATIVE
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 DATE      PHENOLOGY                     PRODUCTIVITY CLIPPINGS                             MEAN  STD   GROWTH
            VEG  REPR                                                                             DEV   INCREMENT
**************************************************************************************************************


22 MAY     3.1  0.0      .014  .016  .029  .043  .007  .036  .007  .028  .022  .019
                         .012  .014  .023  .025  .007  .023  .020  .020  .033  .013   .021 .0099
                                                                                                         -.010
4 JUNE     3.3  0.0      .008  .012  .010  .004  .011  .007  .012  .020  .012  .010
                         .025  .006  .010  .008  .004  .017  .008  .009  .008  .009   .011 .0051
                                                                                                          .005
18 JUNE    3.8  0.0      .007  .020  .025  .015  .011  .011  .016  .007  .014  .022
                         .018  .019  .014  .014  .019  .017  .017  .018  .023  .009   .016 .0050
                                                                                                         -.003
2 JULY     3.8  0.0      .019  .018  .010  .007  .011  .025  .012  .008  .025  .006
                         .015  .010  .010  .010  .017  .012  .006  .007  .012  .012   .013 .0056
                                                                                                          .025
16 JULY    4.0  9.1      .028  .030  .067  .065  .024  .032  .021  .022  .028  .046
                         .040  .033  .030  .038  .059  .065  .054  .029  .022  .017   .037 .0162
                                                                                                         -.023
30 JULY    4.2  9.3      .031  .029  .012  .011  .006  .015  .010  .026  .011  .023
                         .007  .012  .007  .013  .015  .009  .017  .019  .006  .011   .015 .0075
                                                                                                          .019
14 AUG     4.5  9.8      .024  .018  .036  .034  .026  .024  .022  .030  .023  .020
                         .048  .063  .032  .076  .030  .033  .035  .056  .044  .001   .034 .0170
                                                                                                          .001
29 AUG     4.7  9.9      .018  .049  .028  .033  .043  .056  .036  .025  .048  .033
                         .031  .031  .040  .025  .032  .038  .029  .034  .051  .016   .035 .0106
                                                                                                          .027
21 SEPT    5.1 10.5      .035  .073  .077  .042  .040  .042  .048  .057  .044  .070
                         .049  .047  .077  .057  .133  .136  .060  .059  .043  .044   .062 .0279

                         0.0 = NOT RECORDED
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   STUDY AREA UPPER GOVT                    ARTEMISIA TRIDENTATA                          1980  VEGETATIVE
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  DATE      PHENOLOGY                             PRODUCTIVITY CLIPPINGS                              MEAN   STD    GROWTH
              VEG  REPR                                                                                      DEV    INCREMENT
****************************************************************************************************************************

 22 MAY       3.5  0.0       .013   .015   .026   .027   .030   .059   .034   .037   .027   .032
                             .029   .039   .031   .045   .041   .023   .033   .032   .013   .021   .030 .0110
                                                                                                                   -.015
 4 JUNE       3.8  0.0       .014   .011   .012   .011   .021   .025   .012   .014   .019   .013
                             .036   .012   .011   .011   .021   .015   .008   .017   .010   .017   .016 .0065
                                                                                                                    .002
 18 JUNE      4.2  0.0       .005   .021   .015   .014   .013   .007   .014   .015   .017   .013
                             .094   .012   .019   .016   .008   .006   .019   .016   .013   .018   .018 .0185
                                                                                                                   -.002
 2 JULY       4.1  9.1       .015   .009   .012   .018   .017   .024   .010   .010   .026   .008
                             .014   .013   .026   .011   .015   .018   .027   .004   .016   .020   .016 .0065
                                                                                                                   -.003
 16 JULY      3.9  9.1       .015   .015   .007   .013   .023   .013   .021   .012   .027   .004
                             .014   .010   .008   .011   .005   .014   .008   .012   .020   .008   .013 .0060
                                                                                                                    .022
 1 AUG        4.1  9.2       .015   .022   .068   .043   .023   .032   .015   .039   .032   .024
                             .013   .021   .059   .035   .029   .029   .073   .018   .073   .040   .035 .0191
                                                                                                                   -.009
 14 AUG       4.3  9.3       .013   .007   .006   .007   .012   .007   .025   .050   .026   .043
                             .033   .005   .045   .013   .073   .074   .037   .032   .007   .007   .026 .0220
                                                                                                                    .011
 30 AUG       4.6  9.6       .033   .025   .034   .030   .036   .028   .064   .082   .026   .013
                             .022   .029   .042   .040   .039   .032   .030   .066   .041   .027   .037 .0164
                                                                                                                    .032
 20 SEPT      5.2 10.3       .083   .043   .065   .092   .032   .054   .021   .091   .049   .111
                             .061   .102   .076   .099   .035   .087   .077   .070   .096   .043   .069 .0262

                              0.0 = NOT RECORDED
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    STUDY AREA BUD KIMBAL              ARTEMISIA TRIDENTATA                        1980 REPRODUCTIVE

   DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                           MEAN  STD    GROWTH
               VEG  REPR                                                                               DEV   INCREMENT
********************************************************************************************************************

  19 JUNE       4.1   9.0     .038  .019  .028  .017  .064  .067  .035  .024  .039 0.000
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .037 .0181
                                                                                                         .012
   2 JULY       4.6   9.5     .023  .049  .020  .056  .027  .044  .033  .055  .155  .039
                              .068  .049  .022  .023  .037  .058  .020  .027  .081  .092  .049 .0324
                                                                                                        -.005
  29 JULY       5.1   9.9     .056  .073  .042  .036  .020  .060  .037  .075  .047  .042
                              .027  .027  .042  .021  .037  .035  .026  .081  .053  .046  .044 .0177
                                                                                                        -.010
   6 SEPT       5.5  11.0     .039  .129  .020  .018  .033  .044  .013  .034  .061  .042
                              .007  .033  .019  .027  .014  .028  .044  .034  .018  .032  .034 .0258
                                                                                                         .023
  21 SEPT       0.0   0.0     .139  .041  .101  .022  .062  .050  .082  .019  .018  .033
                              .215  .014  .044  .027  .022  .054  .077  .038  .039  .059  .058 .0484

                               0.0 = NOT RECORDED
    STUDY AREA CEDAR MTN.                    ARTEMISIA TRIDENTATA                               1980 REPRODUCTIVE
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   DATE      PHENOLOGY                           PRODUCTIVITY CLIPPINGS                               MEAN  STD    GROWTH
               VEG  REPR                                                                                   DEV    INCREMENT
****************************************************************************************************


  16 JUNE      3.7  0.0      .093  .044  .098  .076  .120  .172  .095  .053  .066  .146
                             .086  .060  .043  .033  .074  .059  .035  .060  .035  .092  .077 .0372
                                                                                                            .016
  30 JUNE      4.2  0.0      .130  .082  .075  .150  .126  .115  .146  .037  .093  .057
                             .094  .084  .033  .103  .107  .055  .119  .081  .091  .084  .093 .0326
                                                                                                            .053
  14 JULY      4.2  0.0      .054  .077  .077  .054  .210  .165  .118  .104  .165  .161
                             .334  .149  .081  .133  .113  .087  .339  .126  .210  .175  .147 .0798
                                                                                                            .089
  28 JULY      4.2  9.3      .238  .107  .367  .102  .404  .393  .213  .163  .163  .293
                             .106  .132  .170  .431  .235  .267  .112  .406  .146  .265  .236 .1132
                                                                                                            .114
  11 AUG       4.3  9.8      .319  .317  .251  .305  .493  .699  .375  .378  .358  .268
                             .179  .411  .262  .149  .208  .576  .239  .632  .186  .378  .349 .1515
                                                                                                           -.166
  30 AUG       4.6  9.8      .171  .193  .069  .151  .126  .212  .117  .284  .210  .325
                             .169  .145  .010  .331  .229  .203  .249  .082  .119  .264  .183 .0843
                                                                                                            .029
  20 SEPT      0.0  0.0      .086  .231  .315  .258  .066  .143  .163  .257  .237  .136
                             .138  .296  .216  .268  .141  .363  .341  .263  .187  .126  .212 .0848

                              0.0 = NOT RECORDED
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 STUDY AREA CUMBER. 3              ARTEMISIA TRIDENTATA               1960 REPRODUCTIVE
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  DATE     PHENOLOGY                  PRODUCTIVITY CLIPPINGS                     MEAN  STD   GROWTH
             VEG  REPR                                                               DEV   INCREMENT
*************************************************************************************************

 17 JUNE     4.4  9.3   .222  .036  .066  .081  .149  .041  .079  .141  .083  .111
                        .054  .120  .075  .043  .061  .070  .046  .133  .074  .041  .086 .0471
                                                                                                .010
  1 JULY     4.5  9.7   .095  .134  .068  .057  .111  .239  .118  .081  .058  .053
                        .069  .029  .041  .189  .045  .072  .147  .057  .092  .165  .096 .0550
                                                                                                .001
 15 JULY     4.6  9.8   .146  .120  .142  .073  .099  .283  .047  .080  .060  .212
                        .041  .047  .044  .075  .103  .097  .040  .099  .037  .087  .097 .0622
                                                                                                .050
  4 AUG      4.7  9.9   .171  .184  .154  .161  .172  .100  .196  .205  .118  .116
                        .089  .085  .078  .130  .107  .131  .087  .217  .271  .163  .147 .0517
                                                                                                .019
 12 AUG      5.4 11.0   .178  .075  .132  .297  .155  .125  .162  .153  .140  .166
                        .194  .111  .182  .077  .189  .109  .254  .239  .168  .201  .165 .0559
                                                                                                .042
 20 SEPT     4.6  9.8   .176  .118  .169  .258  .171  .140  .196  .191  .219  .219
                        .082  .235  .287  .112  .218  .376  .343  .163  .370  .114  .208 .0845

                          0.0 = NOT RECORDED
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          STUDY AREA DEMER                     ARTEMISIA TRIDENTATA                     1980  REPRODUCTIVE
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        DATE    PHENOLOGY                      PRODUCTIVITY CLIPPINGS                     MEAN  STD   GROWTH
                 VEG  REPR                                                                      DEV   INCREMENT
  ************************************************************************************************************

      19 JUNE     3.1  0.0     .033  .069  .065  .068  .024  .070  .097  .039  .068  .069
                               .169  .104  .048  .053  .043  .049  .065  .070  .125  .085  .072 .0338
                                                                                                       -.005
       2 JULY     3.2  0.0     .055  .058  .060  .029  .036  .038  .022  .070  .081  .066
                               .098  .115  .034  .070  .122  .057  .071  .056  .099  .102  .067 .0287
                                                                                                        .033
      15 JULY     3.8  0.0     .057  .137  .098  .048  .075  .112  .071  .066  .095  .092
                               .156  .137  .136  .124 0.000 0.000 0.000 0.000 0.000 0.000  .100 .0341
                                                                                                       -.016
       6 SEPT     3.8  0.0     .085  .042  .095  .058  .041  .058  .052  .033  .052  .040
                               .032  .079  .044  .398  .057  .211  .035  .072  .137  .070  .065 .0849
                                                                                                       -.020
      20 SEPT     4.2  9.1     .040  .033  .067  .045  .041  .050  .081  .094  .087  .085
                               .042  .094  .049  .028  .110  .027  .105  .052  .132  .021  .064 .0320

                                0.0 = NOT RECORDED
  STUDY AREA FARSON                       ARTEMISIA TRIDENTATA                        1980  REPRODUCTIVE
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   DATE      PHENOLOGY                    PRODUCTIVITY CLIPPINGS                          MEAN  STD   GROWTH
              VEG  REPR                                                                         DEV   INCREMENT
**********************************************************************************************************

  17 JUNE     3.9  0.0     .073  .055  .041  .089  .046  .051  .032  .036  .034  .080
                           .058  .105  .159  .040  .080  .102  .034  .062  .059  .020   .063 .0329
                                                                                                      -.030
   1 JULY     3.9  9.1     .046  .051  .027  .059  .030  .016  .046  .023  .015  .023
                           .023  .033  .021  .048  .017  .028  .042  .039  .036 0.000   .033 .0131
                                                                                                       .008
  15 JULY     4.1  9.2     .062  .030  .034  .069  .032  .030  .028  .034  .034  .030
                           .027  .057  .039  .044  .015  .064  .085  .014  .046  .043   .041 .0183
                                                                                                       .069
  28 JULY     4.6  9.7     .039  .194  .104  .109  .051  .071  .098  .191  .087  .074
                           .049  .029  .082  .143  .146  .203  .121  .206  .104  .105   .110 .0549
                                                                                                      -.070
  13 AUG      4.6  9.5     .029  .039  .051  .030  .044  .036  .054  .037  .039  .053
                           .029  .051  .049  .040  .030  .038  .035  .032  .029  .054   .040 .0091
                                                                                                       .036
  31 AUG      4.6  9.8     .080  .082  .066  .097  .037  .081  .075  .072  .156  .085
                           .055  .083  .053  .092  .093  .047  .065  .082  .040  .068   .075 .0257
                                                                                                      -.022
  21 SEPT     0.0  0.0     .016  .023  .027  .051  .030  .033  .037  .058  .041  .088
                           .054  .081  .068  .087  .040  .068  .127  .029  .057  .048   .053 .0273

                           0.0 = NOT RECORDED
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     STUDY AREA HORSE CK                    ARTEMISIA TRIDENTATA                          1980 REPRODUCTIVE
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    DATE       PHENOLOGY                     PRODUCTIVITY CLIPPINGS                          MEAN  STD    GROWTH
                VEG  REPR                                                                          DEV    INCREMENT
**************************************************************************************************************

   20 JUNE      2.9  0.0       .019  .044  .033  .021  .017  .020  .048  .023  .031  .024
                               .016  .024  .023  .028  .021  .035  .032  .013  .023  .017   .026 .0092
                                                                                                            .033
    3 JULY      2.9  0.0       .033  .047  .036  .044  .123  .084  .045  .049  .061  .077
                               .046  .046  .045  .063  .039  .126  .047  .024  .071  .072   .059 .0272
                                                                                                           -.016
   17 JULY      3.6  0.0       .026  .056  .062  .039  .029  .024  .043  .038  .023  .043
                               .027  .047  .026  .052  .053  .075  .073  .028  .067  .023   .043 .0173
                                                                                                            .019
   30 JULY      3.8  9.0       .085  .076  .013  .148  .125  .052  .028  .039  .043  .047
                               .035  .071  .034  .054  .119  .075  .040  .045  .077  .033   .062 .0354
                                                                                                            .006
   29 AUG       4.1  9.2       .048  .022  .081  .016  .031  .081  .105  .115  .146  .051
                               .075  .043 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .068 .0399
                                                                                                            .006
   20 SEPT      4.1  9.6       .032  .068  .062  .051  .158  .052  .035  .035  .148  .066
                               .127  .045  .071  .051  .096  .072  .060  .052  .033  .162   .074 .0419

                                0.0 = NOT RECORDED
   STUDY AREA MESA ANT              ARTEMISIA TRIDENTATA                    1980  REPRODUCTIVE
              ---------             --------------------

  DATE      PHENOLOGY                      PRODUCTIVITY CLIPPINGS                        MEAN  STD   GROWTH
              VEG  REPR                                                                        DEV   INCREMENT
*******************************************************************************************************************

 17 JUNE     3.4  0.0      .026  .034  .029  .039  .032  .029  .013  .066  .036  .036
                           .050  .024  .056  .034  .050  .032  .014  .036  .026 0.000   .035 .0133
                                                                                                     .024
  1 JULY     3.4  0.0      .037  .062  .067  .119  .055  .047  .079  .068  .095  .066
                           .055  .057  .059  .063  .041  .061  .031  .040  .034  .036   .059 .0215
                                                                                                     .001
 15 JULY     4.1  0.0      .079  .060  .110  .067  .042  .059  .048  .093  .050  .086
                           .052  .049  .044  .057  .053  .067  .058  .037  .035  .038   .059 .0198
                                                                                                     .097
 29 JULY     3.8  0.0      .173  .140  .090  .638  .066  .132  .178  .124  .154  .204
                           .123  .198  .114  .174  .081  .155  .095  .066  .135  .076   .156 .1212
                                                                                                     .011
 12 AUG      4.2  9.5      .185  .184  .141  .139  .192  .201  .098  .104  .116  .131
                           .157  .130  .206  .184  .221  .152  .287  .200  .189  .128   .167 .0461
                                                                                                    -.072
 31 AUG      4.1  9.7      .095  .069  .081  .106  .122  .129  .118  .084  .056  .200
                           .116  .107  .059  .147  .088  .064  .058  .030  .058  .114   .095 .0391
                                                                                                    -.017
 21 SEPT     4.5  9.8      .121  .067  .058  .082  .065  .169  .056  .066  .052  .078
                           .067  .108  .081  .075  .115  .080  .050  .037  .067  .059   .078 .0303

                            0.0 = NOT RECORDED
   STUDY AREA OWL DRAW                    ARTEMISIA TRIDENTATA                        1980  REPRODUCTIVE
              ---------                  ----------------------

  DATE      PHENOLOGY                      PRODUCTIVITY CLIPPINGS                          MEAN  STD    GROWTH
              VEG  REPR                                                                          DEV   INCREMENT
**************************************************************************************************************

 18 JUNE      3.6  0.0        .082  .125  .065  .060  .053  .027  .078  .097  .028  .031
                              .062  .069  .032  .061  .066  .060  .130  .097  .051  .080   .068 .0289
                                                                                                          .023
 30 JUNE      3.8  0.0        .039  .052  .097  .072  .212  .063  .119  .072  .163  .153
                              .112  .103  .042  .111  .032  .042  .058  .088 0.000 0.000   .091 .0489
                                                                                                          .031
 13 JULY      3.7  0.0        .108  .014  .167  .087  .218  .198  .106  .071 0.000 0.000
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .121 .0686
                                                                                                          .003
 28 JULY      3.9  0.0        .134  .069  .027  .056  .080  .085  .063  .085  .079  .093
                              .032  .245  .679  .187  .051  .214  .045  .133  .054  .078   .124 .1434
                                                                                                         -.020
  5 SEPT      4.2  9.2        .069  .082  .037  .063  .139  .076  .126  .111  .121  .131
                              .081  .047  .196  .091  .050  .107  .111  .080  .266  .107   .105 .0531
                                                                                                          .047
 21 SEPT      4.5  9.6       0.000  .217  .125  .085  .076  .113  .136  .312  .152 0.000
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .152 .0780

                               0.0 = NOT RECORDED
   STUDY AREA RED WASH                    ARTEMISIA TRIDENTATA                            1980  REPRODUCTIVE
              ----------                  --------------------

  DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                            MEAN   STD    GROWTH
              VEG  REPR                                                                                 DEV   INCREMENT
**************************************************************************************************************************

 16 JUNE     3.4  0.0      .041  .056  .053  .040  .029  .028  .029  .020  .044  .022
                           .030  .023  .032  .029  .035  .047  .034  .021  .023  .034   .034 .0105
                                                                                                              .021
 30 JUNE     3.5  0.0      .064  .106  .012  .047  .079  .073  .016  .069  .071  .052
                           .051  .049  .030  .051  .047  .046  .041  .073  .064  .046   .054 .0218
                                                                                                             -.003
 14 JULY     3.8  0.0      .120  .052  .023  .071  .044  .034  .034  .053  .036  .018
                           .045  .045  .084  .069  .035  .044  .048  .050  .052  .060   .051 .0227
                                                                                                              .036
 28 JULY     4.0  0.0      .070  .089  .095  .175  .099  .108  .184  .083  .042  .089
                           .059  .046  .094  .061  .039  .064  .145  .070  .039  .089   .087 .0411
                                                                                                              .072
 11 AUG      4.2  9.1      .117  .144  .179  .256  .090  .186  .071  .138  .120  .180
                           .111  .214  .242  .100  .220  .124  .238  .134 0.000 0.000   .159 .0569
                                                                                                              .050
 30 AUG      4.3  9.3      .099  .138  .199  .176  .092  .214  .329  .210  .280  .150
                           .274  .263  .249  .106  .098  .192  .249  .210  .441 0.000   .209 .0889
                                                                                                             -.052
 19 SEPT     4.5  9.6      .102  .128  .200  .123  .205  .122  .189  .112  .188  .148
                           .173  .199  .185  .228  .303  .096  .093  .105  .064  .184   .157 .0578

                              0.0 = NOT RECORDED
   STUDY AREA SHOSHONI 7              ARTEMISIA TRIDENTATA                          1980  REPRODUCTIVE
              ----------              --------------------

  DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                             MEAN   STD    GROWTH
              VEG  REPR                                                                                 DEV   INCREMENT
*****************************************************************************************************************************

 18 JUNE     3.2  0.0       .044  .105  .035  .048  .037  .029  .040  .018  .015  .051
                            .032  .039  .076  .033  .056  .034  .073  .055  .053  .088   .048 .0228
                                                                                                           -.001
  1 JULY     3.4  0.0       .027  .026  .032  .025  .094  .061  .028  .048  .016  .031
                            .033  .024  .028  .063  .038  .052  .027  .138  .114  .030   .047 .0332
                                                                                                            .014
 16 JULY     3.7  0.0       .049  .060  .039  .098  .047  .057  .098  .055  .118  .051
                            .035  .037  .054  .039  .026  .098  .082  .047  .085  .051   .061 .0258
                                                                                                            .057
 30 JULY     4.2  0.0       .166  .213  .171  .149  .101  .202  .071  .102  .103  .149
                            .096  .033  .133  .069  .085  .070  .090  .052  .150  .151   .119 .0510
                                                                                                           -.036
 15 AUG      4.3  9.2       .049  .076  .037  .051  .033  .102  .053  .053  .041  .026
                            .044  .022  .053  .055  .044  .040  .079  .740  .029  .037   .083 .1558
                                                                                                           -.001
 30 AUG      4.0  9.1       .159  .051  .041  .070  .062  .138  .133  .064  .068  .062
                            .067  .067  .029  .087  .100  .137  .110  .068  .046 0.000   .082 .0370
                                                                                                           -.015
 21 SEPT     4.2  9.1       .103  .075  .033  .024  .073  .032  .071  .034  .110  .138
                            .051  .071  .051  .036  .059  .052  .129  .093  .057  .047   .067 .0328

                              0.0 = NOT RECORDED
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STUDY AREA SWEETWATER　　ARTEMISIA TRIDENTATA　　1980 REPRODUCTIVE

DATE	PHENOLOGY VEG	PHENOLOGY REPR	PRODUCTIVITY CLIPPINGS										MEAN	STD DEV	GROWTH INCREMENT
18 JUNE	3.1	0.0	.034	.056	.051	.042	.030	.055	.055	.019	.061	.054			
			.040	.054	.042	.034	.078	.034	.055	.108	.025	.025	.048	.0204	
															.019
2 JULY	3.3	0.0	.020	.130	.017	.040	.031	.014	.048	.021	.030	.037			
			.059	.038	.072	.050	.017	.061	.081	.069	.061	.438	.067	.0917	
															.012
16 JULY	3.8	0.0	.089	.046	.037	.159	.084	.065	.086	.042	.107	.106			
			.076	.081	.047	.068	.117	.082	.088	.045	.072	.062	.079	.0295	
															.044
30 JULY	3.8	0.0	.075	.193	.355	.094	.042	.073	.091	.244	.058	.160			
			.085	.107	.105	.065	.073	.096	.133	.133	.119	.165	.123	.0736	
															-.040
14 AUG	4.0	9.1	.075	.048	.115	.131	.025	.040	.056	.099	.092	.048			
			.067	.067	.056	.193	.052	.070	.183	.086	.054	.105	.083	.0447	
															.063
29 AUG	4.2	9.3	.177	.163	.084	.137	.119	.111	.068	.104	.204	.249			
			.168	.115	.125	.170	.098	.061	.094	.210	.223	.237	.146	.0571	
															-.011
20 SEPT	4.5	9.8	.054	.098	.095	.183	.106	.080	.115	.263	.206	.111			
			.088	.075	.109	.127	.140	.362	.211	.097	.123	.062	.135	.0757	

0.0 = NOT RECORDED

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  STUDY AREA UPPER GOVT                  ARTEMISIA TRIDENTATA                         1980  REPRODUCTIVE
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 DATE      PHENOLOGY                         PRODUCTIVITY CLIPPINGS                          MEAN  STD    GROWTH
                                                                                                    DEV    INCREMENT
            VEG  REPR
*************************************************************************************************************************

18 JUNE     3.5  0.0     .073  .067  .052  .075  .054  .058  .032  .063  .069  .078
                         .055  .046  .071  .056  .030  .046  .105  .101  .107 0.000  .065 .0219
                                                                                                          .028
 2 JULY     3.8  0.0     .057  .094  .067  .096  .110  .105  .102  .038  .199  .031
                         .083  .103  .082  .103  .061  .050  .074  .078  .267  .056  .093 .0544
                                                                                                         -.001
16 JULY     4.2  0.0     .165  .062  .066  .081  .077  .104  .098  .116  .162  .086
                         .111  .101  .066  .077  .076  .083  .040  .056  .065  .142  .092 .0339
                                                                                                          .059
 1 AUG      4.1  9.1     .163  .135  .088  .074  .104  .121  .157  .171  .162  .178
                         .088  .143  .080  .086  .174  .251  .154  .275  .164  .240  .150 .0571
                                                                                                         -.022
14 AUG      3.9  9.1     .149  .185  .057  .170  .158  .104  .057  .086  .062  .118
                         .141  .086  .088  .074  .090  .093  .326  .229  .104  .182  .128 .0670
                                                                                                         -.028
30 AUG      4.1  9.2     .067  .087  .066  .078  .124  .126  .097  .095  .113  .048
                         .165  .090  .150  .092  .051  .226  .088  .070  .089  .072  .100 .0424
                                                                                                         -.008
20 SEPT     4.3  9.3     .032  .073  .060  .108  .059  .072  .058  .073  .101  .101
                         .042  .083  .055  .113  .067  .166  .151  .140  .204  .084  .092 .0443

                          0.0 = NOT RECORDED
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SECTION V

EXCLOSURE STUDIES (PRODUCTION, COVER, AND PRECIPITATION)

1980

Introduction

Studies of vegetation forage production from several exclosures and relic areas of the Big Horn and Wind River Basins were initiated during the 1962 field season. These studies included included data from 19 livestock enclosures and one relic area. Research activities have been continued annually since that time to include 43 different exclosures throughout the western half of Wyoming. The objectives of the program are to determine:

(1) the relationship of vegetation production with phenodynamics and environmental data;

(2) the relationship of annual herbage production to area cover percentage;

(3) the influence of different treatments, the environment, and succession on vegetation changes;

(4) the influence of some range improvement practices on herbage production and cover.

Methods and Procedures

Area cover and herbage production studies on sagebrush-grass and juniper sites were conducted on transects of 20 quadrats, 1' x 1', spaced systematically along a randomly located 100' steel tape. On sites dominated by saltbush, a variation of the sampling technique, described in the 1968 results, was used to measure herbage production. Twenty 1' x 10' plots were located systematically along a randomly located 100' steel tape. Each 1' x 10' plot was subsampled for vegetative cover using 10 1' x 1' quadrats.

Area cover of all herbaceous, semi-woody, and woody species was estimated within each square foot plot. Data of shrub crown cover and basal cover of plains pricklypear, Hood's phlox, and Hooker sandwort were not combined when comparing area cover to herbaceous production since this group of plants was not clipped.

Herbage production was determined by clipping herbaceous species at ground or crown level. The clipping procedure was conducted on or near the same date as the previous year for each exclosure. Production field procedures are initiated each year shortly after July 4 on the sites dominated by Gardner saltbush. It is treated as a herbaceous species and all new annual growth is clipped at that time for determination of total production. Clipping procedures for measures of grass and forb production are completed by August 22 each year with latest activities at sagebrush-grass exclosures in the Wind River Basin. Clippings were oven-dried at 70° C for 24 hours prior to weighting.

On areas where animal use had occurred prior to clipping, utilization estimated by species were made. These estimates were made at the same time and within each plot when clipped. The utilization values were averaged by species for the 20 plots and later used to adjust production for herbage lost by utilization.

As in 1968 and 1971 through the present, by adding the shrubby and mat forming species production to the clipped production, an index of total production was derived for each site. Shrub, mat forming, and pricklypear plant production was obtained by a modified double-sampling technique during late September and October. Weight units were estimated on 20 macro quadrats, 4' x 5', subdivided into six inch squares, spaced 6-12 steps apart across the study area. Shrubby species larger than six square inches, primarily big sagebrush, were estimated using the six inch square as one weight unit. Mat forming plants and shrubs smaller than six square inches were estimated by weight units of characteristic plant shape and size. Three of these weight units for each species were clipped for weight determination. Each of these units was dried in an oven at 70° C for 96 hours. The average gram weight of the three weight units, multiplied times the total number of estimated units in 20 quadrats, was converted to lbs/acre, an estimate of annual production.

At the same time clipped production data were collected during July and August, pictures of the transects were taken giving a pictorial history from year to year at each study location.

Precipitation data was recorded from simple aluminum rain gauges installed at each exclosure. THe rain gauge has a diameter of 2.79 inches; so each 100 milliliters of water recorded in the gauge equals one inch of precipitation. Oil is added to each gauge after reading to prevent evaporation. During the winter months antifreeze is added in known amounts to prevent the gauges from freezing and breaking. Precipitation data has been collected four times a year -- April 15, July 1, September 1, and October 15. In the Big Horn Basin however moisture in gauges, beginning in 1977, was read seven times during the year: April 15, June 1, July 1, August 1, September 1, October 15, December 1. BLM personnel responsible for rangeland inventory and hydrologic interrelationships urged the increased frequency of recording precipitation. A number of new locations were established and small commercial gauges installed on them. The new gauges were located primarily in western Big Horn Basin. The additions serve well to provide information from throughout the Basin.

Results 1980

The production section of the 1980 Annual Report closely follows the format of the 1979 report. The new format of the data summary sheets which were revised in 1979 is again utilized. Table I gives an alphabetical listing at study sites, the county name code, the county where each site is located and the treatments studied at each site. Table II is a list of the names of plants which occur at these sites, their lettered code name, botanical name, life form and longevity. Table III gives sampled utilization by species and estimated production values in lbs per acre for the different sites and treatments. Study areas that are not mentioned exhibited no observable utilization. Tables IV and V each include intratabular table of contents for the data summary sheets from each study site. Table IV includes those which were sampled in the early spring while Table V lists those sampled near the dates of past years in later summer. The data summary sheets follow, giving production and cover data for each treatment on all 43 sites. Forage production is given for each shrub and perennial grass species plus the categories; shrub, perennial grass, annual grass, perennial forbs, annual forbs, annual herbaceous and total production. Forage production is given in both lbs per acre and kgs per hecture. Average percent cover and individual species.

Herbage production values for the study sites varied greatly from one region of the state to another. Precipitation in the southwestern section of Wyoming was much above the long term average. This increase in precipitation contributed to very high forage production values at the Cumberland sites were the highest ever recorded during this study.

Precipitation in the Wind River Basin was mostly below average. Forage production on the sites in this area varied from near average in the southern areas to below average in the central and northern parts of the basin. The Lander Ant site continued to show a downward trend in herbage production. This degradation might be contributed to air increase in Big Sagebrush dominance.

In the Big Horn Basin precipitation varied from above the long term average on sites dominated by Gardner Saltbush to average on dry big sagebrush sites to below average on wetter sites dominated by big sagebrush. Subsequently sites dominated by big sagebrush had forage production values mostly below average. Buffalo Creek exclosure again had herbage production values much below its average. This degradation in production was found to be highly correlated with an increase in big sagebrush individuals. Gardner saltbush dominated sites had an abundance at precipitation this year. Many of these sites stayed green well into the summer. Despite the increase in precipitation and the extended period of verdure, forage production on these sites did not show a large increase in production. The late spring and summer distribution of the precipitation probably came too late to affect the forage production on these sites.

Horse Creek exclosure was not sampled during its summer sampling date this year. The exclosure was vandelized and most of the vegetation inside the exclosure was grazed and heavily trampled. Shoshoni 8 "Out" treatment was also not reported due to the data being misplaced.

Table I. An alphabetical listing of study areas, the county name code, the county location and the treatments studied at each area.

County Name Code	Study Areas	County	Treatment
2017	Big Trails G.R.I. Exc.	Washakie	Inside Spray
			Outside Native
1002	Boysen Reservoir Exc.	Fremont	Inside Native
			Outside Native
2007	Bud Kimball Exc.	Washakie	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
2002	Buffalo Creek Exc.	Washakie	Inside Native
			Outside Native
2003	Burned Wagon Exc.	Washakie	Inside Native
			Outside Native
0403	Cedar Mountain Exc.	Sweetwater	Inside Native
1501	Cochran Exc.	Hot Springs	Inside Native
			Outside Native
			Inside Cultivated
			Outside Spray
1901	Cumberland #1 Exc.	Uinta	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
1201	Cumberland #2 Exc.	Lincoln	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
1202	Cumberland #3 Exc.	Lincoln	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
1902	Cumberland #4 Exc.	Uinta	Inside Native
			Outside Native
2004	Demer Exc.	Washakie	Inside Native
			Outside Native
2005	Dutch Nick Exc.	Washakie	Inside Native
			Outside Native
0404	Farson Exc.	Sweetwater	Inside Native
			Outside Native
1007	Granite Mountain Exc.	Fremont	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
0901	Halogeton Pasture #1 Exc.	Big Horn	Inside Native
0905	Halogeton Pasture #2 Exc.	Big Horn	Inside Native
0903	Halogeton Pasture #3 Exc.	Big Horn	Inside Native

Table I. (continued):

County Name Code	Study Areas	County	Treatment
0913	Horse Creek Exc.	Big Horn	Inside AGSM
			Outside AGSM
			Inside AGSP
			Outside AGSP
			Inside ARNO
			Outside ARNO
0914	Kane Deer Exc.	Big Horn	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
0921	Kane Deer G.R.I. Exc.	Big Horn	Inside Spray
			Outside Native
1502	Kirby Creek Exc.	Hot Springs	Inside Native
			Outside Native
1001	Lander Ant Exc.	Fremont	Inside Native
			Outside Native
1003	Lower Gov't Draw Exc.	Fremont	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
1004	McGraw Flat Exc.	Fremont	Inside Native
			Outside Native
0920	Medicine Lodge G.R.I. Exc.	Big Horn	Inside Spray
			Outside Native
2301	Mesa Antelope Exc.	Sublette	Inside Native
			Outside Native
1503	North Butte Relic Area	Hot Springs	Relic
0104	Owl Draw Exc.	Natrona	Inside ARNO
			Inside ARTR
0406	Red Wash #2 Exc.	Sweetwater	Inside Native
1504	Round Top Relic Area	Hot Springs	Relic
1505	Sand Gulch	Hot Springs	Inside Native
			Outside Native
1009	Shoshone Ant #2 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
1011	Shoshone Ant #4 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
1013	Shoshone Ant #7 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native

Table I. (continued):

County Name Code	Study Areas	County	Treatment
1014	Shoshone Ant #8 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
1015	Shoshone Ant #9 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
1017	Shoshone Ant #11 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
2009	Smilo Exc.	Washakie	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
1005	Sweetwater Exc.	Fremont	Inside ARNO
			Outside ARNO
			Inside ARTR
			Outside ARTR
2010	Two Mile Hill Exc.	Washakie	Inside Native
			Outside Native
1006	Upper Gov't Draw Exc.	Fremont	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
2006	West Pasture Exc.	Washakie	Inside Native
			Outside Native

Table II. List of plant names which occurred in production study areas.

Genus-Species	Common Name	Life Form	Longevity
Achillea lanulosa	Yarrow	Forb	Perennial
Agoseris glauca	Pale agoseris	Forb	Perennial
Agropyron cristatum	Crested wheatgrass	Grass	Perennial
Agropyron smithii	Western wheatgrass	Grass	Perennial
Agropyron spicatum	Bluebunch wheatgrass	Grass	Perennial
Allium textile	Prairie onion	Forb	Perennial
Allium spp.	Onion	Forb	Perennial
Androcace occidentalis	Western rockjasmine	Forb	Annual
Antennaria dimorpha	Low pussytoes	Mat-form	Perennial
Antennaria rosea	Rose pussytoes	Mat-form	Perennial
Arabis holboellii	Holboell rockcress	Forb	Perennial
Arabis lignifera	Woody rockcress	Forb	Annual
Arenaria congesta	Ballhead sandwort	Forb	Perennial
Arenaria hookeri	Hooker sandwort	Forb	Perennial
Aristida fendleriana	Fendler threeawn	Grass	Perennial
Artemisia frigida	Fringed sagewort	Half-shrub	Perennial
Artemisia longiloba	Alkali sagebrush	Shrub	Perennial
Artemisia nova	Black sagebrush	Shrub	Perennial
Artemisia pedatifida	Birdsfoot sagewort	Half-shrub	Perennial
Artemisia spinescens	Bud sagewort	Half-shrub	Perennial
Artemisia tridentata	Big sagebrush	Shrub	Perennial
Astragalus drummondii	Drummond milkvetch	Forb	Perennial
Astragalus missouriensis	Missouri milkvetch	Forb	Perennial
Astragalus purshii	Pursh loco	Forb	Perennial
Astragalus spp.	Milkvetch	Forb	Perennial
Atriplex argentea	Silverscale saltbush	Forb	Annual
Atriplex canescens	Fourwing saltbush	Shrub	Perennial
Atriplex confertifolia	Shadscale saltbush	Shrub	Perennial
Atriplex gardneri	Gardner saltbush	Half-shrub	Perennial
Balsamorhiza sagittata	Arrowleaf balsamroot	Forb	Perennial
Bouteloua gracilis	Blue grama	Grass	Perennial
Bromus japonicus	Japanese chess	Grass	Annual
Bromus tectorum	Cheatgrass	Grass	Annual
Calamagrostis montanensis	Plains reedgrass	Grass	Perennial
Calochortis nuttallii	Sego lily	Forb	Perennial
Camelina microcarpa	Littlepod falseflax	Forb	Annual
Carex eleocharis	Needleleaf sedge	Sedge	Perennial
Carex filifolia	Threadleaf sedge	Sedge	Perennial
Castilleja angustifolia	Narrowleaf Ind. paintbrush	Forb	Perennial
Castilleja linariaefolia	Wyoming Indian paintbrush	Forb	Perennial
Cerastium arvense	Field chickweed	Forb	Perennial
Ceratoides lanata	Winterfat	Half-shrub	Perennial
Chaenactis douglasii	Douglas dustymaiden	Forb	Perennial
Chenopodium album	Lambsquarter	Forb	Annual
Chenopodium dessicatum	Desert goosefoot	Forb	Annual
Chenopodium lanceolatum	Lambsquarter goosefoot	Forb	Annual
Chenopodium leptophyllum	Narrowleaf goosefoot	Forb	Annual
Chenopodium spp.	Goosefoot	Forb	Annual

Table II. (continued):

Genus-Species	Common Name	Life Form	Longevity
Chrysothamnus nauseosus	Rubber rabbitbrush	Shrub	Perennial
Chrysothamnus viscidiflorus	Douglas rabbitbrush	Shrub	Perennial
Comandra pallida	False toadflax	Forb	Perennial
Cordylanthus ramosus	Bushy birdbeak	Forb	Annual
Crepis acuminata	Tapertip hawksbeard	Forb	Perennial
Crepis modocensis	Yellowstone hawksbeard	Forb	Perennial
Cymopterus montanus	False carrot	Forb	Perennial
Descurainia pinnata	Pinnate tansymustard	Forb	Annual
Draba spp.	Draba	Forb	Perennial
Elymus cinereus	Basin wildrye	Grass	Perennial
Erigeron canadensis	Horseweed fleabane	Forb	Annual
Erigeron compositus	Fernleaf fleabane	Forb	Perennial
Erigeron pumilus	Low fleabane	Forb	Perennial
Erigeron spp.	Fleabane	Forb	Perennial
Eriogonum caespitosum	Mat wildbuckwheat	Mat-form	Perennial
Eriogonum cernuum	Nodding wildbuckwheat	Forb	Annual
Eriogonum microthecum	Slenderbrush wildbuckwheat	Forb	Perennial
Eriogonum ovalifolium	Cushion wildbuckwheat	Mat-form	Perennial
Eriogonum subalpinum	Subalpine eriogonum	Mat-form	Perennial
Eriogonum umbellatum	Sulfur wildbuckwheat	Mat-form	Perennial
Eriogonum spp.	Eriogonum	Mat-form	
Erysimum asperum	Plains wallflower	Forb	Perennial
Festuca idahoensis	Idaho fescue	Grass	Perennial
Gaura coccinea	Scarlet gaura	Forb	Perennial
Gilia congesta	Ballhead gilia	Forb	Perennial
Gilia insignis	Gilia	Forb	Annual
Gilia leptomeria	Gilia	Forb	Annual
Gilia pumila	Dwarf gilia	Forb	Annual
Gilia spicata	Spike gilia	Forb	Perennial
Gymnosteris parvula	Leafless false phlox	Forb	Annual
Halogeton glomeratus	Halogeton	Forb	Annual
Haplopappus acaulis	Stemless goldenweed	Mat-form	Perennial
Helianthus annuus	Annual sunflower	Forb	Annual
Hordeum pusillum	Little barley	Grass	Annual
Juniperus osteosperma	Utah juniper	Shrub-Tree	Perennial
Juniperus scopulorum	Rocky Mountain juniper	Shrub-Tree	Perennial
Kochia americana	Greenmolly summercypress	Half-shrub	Perennial
Koeleria cristata	Prairie junegrass	Grass	Perennial
Labiatae family	Mint family	Forb	Perennial
Lactuca scariola	Prickly lettuce	Forb	Annual
Lactuca spp.	Lettuce	Forb	Annual
Lappula redowskii	Bluebur stickseed	Forb	Annual
Lappula texana	Stickseed	Forb	Annual
Lepidium densiflorum	Prairie pepperweed	Forb	Annual
Lepidium perfoliatum	Clasping pepperweed	Forb	Annual
Leptodactylon pungens	Granite pricklygilia	Half-shrub	Perennial
Lesquerella spp.	Bladderpod	Forb	Perennial
Lewisia rediviva	Bitterroot	Forb	Perennial
Linum lewisii	Lewis flax	Forb	Perennial
Lomatium spp.	Lomatium	Forb	Perennial
Lupinus pusillus	Rusty lupine	Forb	Annual

Table II. (continued):

Genus-Species	Common Name	Life Form	Longevity
Machaeranthera canescens	Hoary aster	Forb	Perennial
Machaeranthera glabriuscula	Woody aster	Half-shrub	Perennial
Machaeranthera grindeloides	Woody aster	Half-shrub	Perennial
Machaeranthera tanacetifolia	Tansyleaf aster	Forb	Annual
Mentzelia albicaulis	Whitestem mentzelia	Forb	Annual
Mertensia ciliata	Mountain bluebell	Forb	Perennial
Monolepis nuttalliana	Nuttall monolepis	Forb	Annual
Musineon divaricatum	Falsecarrot	Forb	Perennial
Oenothera trichocalyx	Evening primrose	Forb	Annual
Opuntia polycantha	Plains pricklypear	Forb	Perennial
Oryzopsis hymenoides	Indian ricegrass	Grass	Perennial
Oxytropis sericea	Silky pointloco	Forb	Perennial
Penstemon cleburnei	Cleyburn penstemon	Forb	Perennial
Penstemon laricifolius	Larchleaf penstemon	Forb	Perennial
Penstemon spp.	Penstemon	Forb	Perennial
Phlox hoodii	Hood's phlox	Mat-form	Perennial
Phlox longifolia	Longleaf phlox	Forb	Perennial
Phlox multiflora	Flowery phlox	Mat-form	Perennial
Physaria australis	Twinpod	Forb	Perennial
Plantago patagonica	Wooly Indianwheat	Forb	Annual
Poa ampla	Big bluegrass	Grass	Perennial
Poa fendleriana	Mutton bluegrass	Grass	Perennial
Poa secunda	Sandberg bluegrass	Grass	Perennial
Polygonum aviculare	Prostrate knotweed	Forb	Annual
Polygonum sawatchense	Sawatch knotweed	Forb	Annual
Pteryxia terebinthina	Ferny parsley	Forb	Perennial
Rhus trilobata	Skunkbush sumac	Shrub	Perennial
Salsola iberica	Russian thistle	Forb	Annual
Sarcobatus vermiculatus	Greasewood	Shrub	Perennial
Sedum stenopetalum	Stonecrop	Forb	Perennial
Sisymbrium altissimum	Tumblemustard	Forb	Annual
Sisymbrium linifolium	Tumblemustard	Forb	Perennial
Sphaeralcea coccinea	Scarlet globemallow	Forb	Perennial
Sporobolus cryptandrus	Sand dropseed	Grass	Perennial
Stipa comata	Needleandthread	Grass	Perennial
Stipa viridula	Green needlegrass	Grass	Perennial
Symphoricarpos occidentalis	Western snowberry	Shrub	Perennial
Symphoricarpos spp.	Snowberry	Shrub	Perennial
Taraxacum officinale	Common dandelion	Forb	Perennial
Tetradymia canescens	Gray horsebrush	Shrub	Perennial
Tetradymia spinosa	Cottonthorn horsebrush	Shrub	Perennial
Tragopogon dubius	Salsify	Forb	Biennial
Trifolium gymnocarpon	Hollyleaf clover	Forb	Perennial
Trifolium spp.	Clover	Forb	Perennial
Umbelliferae family	Carrot family	Forb	Perennial
Viola nuttallii	Nuttall violet	Forb	Perennial
Vulpia octoflora	Common six-weeks grass	Grass	Annual
Xanthocephalum sarothrae	Broom snakeweed	Half-shrub	Perennial
Zigadenus venenosus	Death camas	Forb	Perennial

Table III. Utilization occurring prior to clipping.

Exclosure	Treatment	Species	% Utilization	Production lbs/acre
Big Trails	In Spray	AGSP	40	1.73
		STCO	53.7	1.39
				3.12
	Out Native	BRTE	8.2	2.50
		POSE	19.0	.91
				3.41
Bud Kimball	Out Native	AGSM	5.2	2.21
	Out Spray	AGSM	17.2	15.79
		POSE	3.8	.72
				16.51
Burned Wagon	Out Native	POSE	9.7	1.01
Cochran	Out Native	AGSM	1.8	2.69
		STCO	17.4	1.30
				3.99
	Out Spray	AGSM	.2	.43
		POSE	2.2	.48
		STCO	48.6	9.02
				9.93
Cumberland 1	Out Native	AGSM	1.9	2.21
		POSE	1.3	.05
				2.26
	Out Spray	AGSM	3.4	4.94
			1.2	.19
				5.13
Cumberland 2	Out Native	AGSM	4.7	4.26
		POAM	12.2	3.60
				7.87
	Out Spray	AGSM	18.9	19.78
			3.4	.14
				19.92
Granite Mountain	Out Native	AGSM	.6	.53
		POFE	.8	.58
		POSE	5.4	1.10
				2.21
	Out Spray	POFE	3.4	1.54
Kirby Creek	Out Native	AGSM	1.5	1.15
		POSE	17.3	.43
				1.58

Table III. (continued):

Exclosure	Treatment	Species	% Utilization	Production lbs/acre
Lower Gov't Draw	In Native	AGSM	.1	.14
	Out Native	AGSM	7.0	4.27
			17.8	4.08
				8.35
	Out Spray	AGSM	16.8	22.27
		STCO	41.8	13.78
				36.05
McGraw Flat	Out Native	POFE	.3	.24
Mesa Antelope	Out Native	AGSM	.4	.24
Sand Gulch	Out Native	AGSP	.9	.48
Shoshoni 2	Out Native	AGSM	3.2	.67
Two Mile Hill	In Native	AGCR	1.3	6.48
		SIHY	.3	1.01
				7.49
	Out Native	AGSM	30.0	13.33
		SIHY	46.5	2.26
		POSE	13.3	3.74
		MACA	70.0	.58
				19.91
Upper Gov't Draw	In Native	POSE	.7	.38
	Out Native	AGSM	.3	.14
		KOCR	3.6	.91
		POSE	1.7	.62
				1.67
	Out Spray	AGSM	5.4	4.80
		KOCR	37.8	27.36
		STCO	26.7	1.30
				33.46
West Pasture	Out Native	ORHY	.1	.24

Table IV. Vegetation cover data, precipitation and herbage production data alphabetically by exclosure for the 1980 early spring sampling date.

Exclosure	Treatment	Page
Bud Kimball	In Native	86
Cedar Mountain	In Native	87
Cumberland #3	In Native	88
Demer	In Native	89
Farson	In Native	90
Horse Creek	In AGSP	91
Horse Creek	In ARNO	92
Horse Creek	In ARTR	93
Mesa Antelope	In Native	94
Owl Draw	In ARNO	95
Owl Draw	In ARTR	96
Red Wash #2	In Native	97
Shoshoni #7	In Native	98
Sweetwater	In ARNO	99
Sweetwater	In ARTR	100
Upper Government	In Native	101

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       2007.   BUD KIMBAL      4   JUNE 1980      IN NATIVE

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
     PLANT   PLANT  AVE.    1X1    TOTAL   AVE.   WGT./   LBS   KGS
     CODE    NAME   PER-    ABS.   WGT.    WGT.   UNIT    PER   PER
                    CENT    PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                    COVER   FREQ.  SQ.FT.  OCCUR- AREA
                    AREA    BASE           RENCES
                            20
   ************************************************************************
        6  SHRUBS
             APTR       5.61    13.
             OPPO       1.53     2.
             PHHO       1.46     9.
        3  PER GRASS
             AGSM       1.44    20.  17.34   .87     .60  83.26   93.33
             POSE        .94    17.   2.20   .11     .12  10.56   11.84
             STCO        .23     1.   1.83   .09     .41   8.78    9.84
                     TOTAL PERENNIAL GRASS PRODUCTION = 102.60  115.01
        5  ANN GRASS
             BRTE        .01     2.
                  ANNUAL GRASSES =     .03   .00     .15    .14     .16
        2  PER FORBS
             AGGL        .06     2.
             CACH        .36     7.
             CANU        .01     1.
             CAMO        .10     2.
             EAPU        .74    15.
             LERE        .02     1.
             VINU        .01     1.
                 PERENNIAL FORBS =   10.04   .50     .39  48.20   54.03
        4  ANN FORBS
             DEPI        .01     1.
             GIPU        .05     4.
             PLPA        .05     5.
                    ANNUAL FORBS =     .09   .00     .05    .43     .48

               ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 151.37  169.69


        PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
        RAIN GAUGE                      AND WOODY MAT FORM PLANTS
       *********************            *******************************
        OCT.15 TO APR.15 =   2.85         APTR               311.39  349.07
        APR.15 TO JULY 1 =   1.95         OPPO                20.59   23.08
        JULY 1 TO SEPT.1 =   1.40         PHHO                12.03   13.48
        SEPT.1 TO OCT.15 =    .80
        SEASON TOTAL     =   7.00
        LONG TERM AVERAGE=   9.30

                              TOTAL SHRUB PRODUCTION =  344.01  385.64


                                    TOTAL PRODUCTION =  495.38  555.32
                                    ***********************************
   403.   CEDAR MT         19       MAY 1980       IN NATIVE

                          NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1      TOTAL    AVE.     WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.     WGT.     WGT.     UNIT     PER     PER
                   CENT    PLOT     GMS/20   /PLOT    COVER    ACRE    HA.
                   COVER   FREQ.    SQ.FT.   OCCUR-   AREA
                   AREA    BASE              RENCES
                           20
*******************************************************************************
    6  SHRUBS
         ARTR      8.90      5.
         ATGA       .27      2.      .57      .03      .11    2.73      3.06
         CHVI      2.58      3.
         OPPO       .05      1.
         TESP       .10      2.
    3  PER GRASS
         AGSP       .05      2.      .27      .01      .27    1.29      1.45
         POSE       .23      5.     1.13      .06      .25    5.42      6.08
         SIHY       .63      8.     4.49      .22      .36   21.55     24.16
                   TOTAL PERENNIAL GRASS PRODUCTION =        28.26     31.68
    2  PER FORBS
         ARHO2      .02      2.
         ASPU       .04      1.
         PHLO       .66     14.
         SPCO       .02      3.
         UNK        .02      2.
               PERENNIAL FORBS =    4.05      .20      .27   19.44     21.79

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        50.43     56.53


      PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                           AND WOODY MAT FORM PLANTS
      ********************                 ******************************
      OCT.15 TO APR.15  =     3.54          ARSP               2.08     2.34
      APR.15 TO JULY 1  =    E3.00          ARTR             148.94   166.97
      JULY 1 TO SEPT.1  =      .98          ATCO               3.46     3.88
      SEPT.1 TO OCT.15  =    E1.20          CHVI               1.81     2.02
      SEASON TOTAL      =     9.22          PHHO                .40      .44
      LONG TERM AVERAGE=      8.18          TESP               1.45     1.62

                            TOTAL SHRUB PRODUCTION =  158.14   177.27


                                 TOTAL PRODUCTION =  208.57   233.81
                                 *********************************
 1202.    CUMBER 3       20      MAY 1980      IN NATIVE
 [illegible]

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT   PLANT   AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE    NAME    PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                 CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA    BASE             RENCES
                         20
*********************************************************************
   6  SHRUBS
       APTR      16.28     11.
       CHVI       1.11      3.
       ERMI        .06      1.
       MAGL        .02      1.
       PHHO        .15      3.
   3  PER GRASS
       AGSM       1.39     15.   11.97      .60      .43   57.47    64.42
       AGSP        .55      5.    4.30      .22      .39   20.64    23.14
       ORHY        .60      5.    3.51      .19      .32   18.29    20.50
       POFE        .71      7.    4.40      .22      .31   21.12    23.68
       POSE        .85     10.    4.07      .20      .24   19.54    21.90
       SIHY        .43      4.    3.65      .18      .42   17.52    19.64
       STCO        .23      2.     .94      .05      .21    4.51     5.06
                 TOTAL PERENNIAL GRASS PRODUCTION = 159.09   178.34
   2  PER FORBS
       AGGL        .27     11.
       AMRO        .73      6.
       ASDI        .05      1.
       CYMC        .01      1.
       ERPU        .08      2.
       LOOF        .04      3.
       MELO        .08      1.
       PHLO       1.06     17.
       TRGY       1.58     17.
            PERENNIAL FORBS =  21.98     1.10      .26  105.54   116.31
   4  ANN FORBS
       DEPI        .02      2.
       UNK         .01      1.
               ANNUAL FORBS =    .04      .00      .10     .19      .21

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 264.82  296.86


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
 *********************                ****************************
  OCT.15 TO APR.15 =  9.87               APTR           167.52  210.21
  APR.15 TO JULY 1 =  1.95               CHVI             5.14    5.77
  JULY 1 TO SEPT.1 =  1.10               ERMI             1.03    1.16
  SEPT.1 TO OCT.15 =  2.40               CPPO              .51     .57
  SEASON TOTAL     = 15.32               PHHO             2.07    2.32
  LONG TERM AVERAGE= 11.07

                         TOTAL SHRUB PRODUCTION =  196.28  220.03


                              TOTAL PRODUCTION =  461.10  516.89
  2004.   DEMER           23     MAY 1980      IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS    KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER    PER
                 CENT   PLOT   GMS/20  /PLOT   COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.  OCCUR-  AREA
                 AREA   BASE           RENCES
                        20
*********************************************************************
   6  SHRUBS
       ARTR     26.08    13.
   3  PER GRASS
       AGSM      1.11    11.  13.43     .67     .60  64.48    72.28
       BOGR      2.11     9.   6.76     .34     .16  32.45    36.38
       POSE       .95    11.   2.42     .12     .13  11.62    13.03
                 TOTAL PERENNIAL GRASS PRODUCTION = 108.55   121.68
   5  ANN GRASS
       BRTE       .21     6.
       VUOC       .02     3.
              ANNUAL GRASSES =  3.40    .17     .77  16.32    18.29
   2  PER FORBS
       ALTE       .04     4.
       CANU       .02     2.
       CYMO       .01     1.
            PERENNIAL FORBS =    .07    .00     .06    .33      .37
   4  ANN FORBS
       DEPI       .01     1.
       LARE       .02     1.
       LEDE       .05     4.
       PLPA      1.13    12.
       SIAL       .01     2.
               ANNUAL FORBS =   3.09    .15     .13  14.83    16.62

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 140.03   156.97


   PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                       AND WOODY MAT FORM PLANTS
  ********************              ****************************
   OCT.15 TO APR.15 =   3.75         ARTR             108.47  121.59
   APR.15 TO JULY 1 =   1.75         OPPO              55.12   61.79
   JULY 1 TO SEPT.1 =   1.85
   SEPT.1 TO OCT.15 =    .95
   SEASON TOTAL     =   8.30
   LONG TERM AVERAGE=   8.47

                        TOTAL SHRUB PRODUCTION =  163.58  183.38


                             TOTAL PRODUCTION =  303.61  340.35
                             *******************************
   404.   FARSON         21     MAY 1980     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL  AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.   WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20 /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT. OCCUR- AREA
                 AREA   BASE          RENCES
                        20
**********************************************************************
    6  SHRUBS
         ARTR     11.20      9.
         CELA       .08      3.
         CHVI      2.16      7.
         PHHO      1.68     10.
    3  PER GRASS
         AGSM       .51     17.    2.55     .13     .25  12.24   13.72
         ORHY       .49      7.    1.47     .07     .15   7.05    7.90
         POSE       .02      1.     .04     .00     .10    .19     .21
         SIHY       .04      2.     .09     .00     .11    .43     .48
                TOTAL PERENNIAL GRASS PRODUCTION =  19.91   22.32
    2  PER FORBS
         ALTF       .02      3.
         ASPU       .56      3.
         CYMO       .02      2.
         ERPU       .09      1.
         PECL       .01      1.
         SPCO       .01      1.
         SILI       .44     13.
            PERENNIAL FORBS =      3.89     .19     .17  18.67   20.93

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  38.58   43.25


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    *********************             ******************************
    OCT.15 TO APR.15 =      3.58        ARTR             142.50  159.74
    APR.15 TO JULY 1 =      2.94        ATCO               2.13    2.39
    JULY 1 TO SEPT.1 =     E1.00        CELA               6.99    7.83
    SEPT.1 TO OCT.15 =       .98        CHVI               5.76    6.46
    SEASON TOTAL     =     E8.50        EROV                .44     .49
    LONG TERM AVERAGE=      6.60        GRSP                .44     .50
                                        OPPO               1.04    1.16
                                        PHHO              29.32   32.86

                         TOTAL SHRUB PRODUCTION =  188.63  211.45


                               TOTAL PRODUCTION =  227.21  254.70
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  913.   HORSE CK        24      MAY 1980      IN AGSP

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1     TOTAL    AVE.     WGT./    LBS      KGS
CODE    NAME    PER-   ABS.    WGT.     WGT.     UNIT     PER      PER
                CENT   PLOT    GMS/20   /PLOT    COVER    ACRE     HA.
                COVER  FREQ.   SQ.FT.   OCCUR-   AREA
                AREA   BASE             RENCES
                       20
*****************************************************************************
  6  SHRUBS
      ARTR       1.21     4.
      OPPO        .35     1.
      PHHO        .18     3.
      XASA        .50     1.
  3  PER GRASS
      AGSM        .40     9.    3.36      .17      .43   16.13     18.08
      AGSP       5.34    17.   25.96     1.30      .24  124.65    139.73
      POSE        .16     4.     .82      .04      .23    3.93      4.41
               TOTAL PERENNIAL GRASS PRODUCTION = 144.71    162.22
  2  PER FORBS
      CAAN        .22     1.
      CRAC        .03     2.
          PERENNIAL FORBS =     1.89      .09      .39    9.07     10.17

      ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 153.78    172.39


  PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                          AND WOODY MAT FORM PLANTS
********************                  ******************************
 OCT.15 TO APR.15 =    3.58             ARTR             61.05     68.43
 APR.15 TO JULY 1 =    2.94             CELA               .01       .01
 JULY 1 TO SEPT.1 =   E1.00             OPPO              2.44      2.74
 SEPT.1 TO OCT.15 =     .98             PHHO              2.21      2.47
 SEASON TOTAL     =   E8.50             XASA              4.67      5.24
 LONG TERM AVERAGE=    6.60

                          TOTAL SHRUB PRODUCTION =    70.38     78.89


                                 TOTAL PRODUCTION =  224.16    251.28
                                 ***********************************
```

```
   513.   HORSE CK       24     MAY 1980      IN ARNO

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT  PLANT   AVE.    1X1    TOTAL    AVE.   WGT./   LBS    KGS
CODE   NAME    PER-    ABS.   WGT.     WGT.   UNIT    PER    PER
               CENT    PLOT   GMS/20   /PLOT  COVER   ACRE   HA.
               COVER   FREQ.  SQ.FT.   OCCUR- AREA
               AREA    BASE            RENCES
                       20
*******************************************************************
   6  SHRUBS
        ARNO      7.94    12.
        ARTR       .42     2.
        OPPO       .07     3.
        PHHO       .23     1.
   3  PER GRASS
        AGSP      2.24    14.  14.42     .72     .32  69.24    77.62
        POSE       .10     1.    .09     .00     .05    .43      .48
               TOTAL PERENNIAL GRASS PRODUCTION =     69.67    78.10
   2  PER FORBS
        CAAN       .02     1.
        CRBP       .02     2.
        CYMO       .01     1.
        GACO       .07     5.
        VINU       .01     1.
            PERENNIAL FORBS =   1.50     .07     .60   7.20     8.07
   4  ANN FORBS
        DEPI       .03     4.
               ANNUAL FORBS =    .10     .01     .20    .48      .54

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =     77.35    86.71


    PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                     AND WOODY MAT FORM PLANTS
   ********************            ******************************
   OCT.15 TO APR.15 =  3.58          ARNO             153.40  171.96
   APR.15 TO JULY 1 =  2.94          ARTR              43.66   48.94
   JULY 1 TO SEPT.1 =  E1.00         OPPO              15.78   17.69
   SEPT.1 TO OCT.15 =   .98          PHHO               1.40    1.57
   SEASON TOTAL     =  E8.50         XASA               5.14    5.76
   LONG TERM AVERAGE=  6.60

                             TOTAL SHRUB PRODUCTION =  219.39  245.93


                                TOTAL PRODUCTION =  296.74  332.64
                                ************************************
   913.  HORSE CK        24    MAY 1980      IN ARTR

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS    KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER    PER
                CENT   PLOT   GMS/20  /PLOT  COVER   ACRE   HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
************************************************************************
   6  SHRUBS
        ARTR     6.30     9.
        OPPO     1.20     2.
   3  PER GRASS
        AGSM     2.15    20.  21.93   1.10    .51 105.30  118.04
        POSE      .26     6.    .82    .04    .16   3.93    4.41
                TOTAL PERENNIAL GRASS PRODUCTION = 109.23  122.45
   5  ANN GRASS
        BRTE      .13    12.
             ANNUAL GRASSES =    .14    .01    .06    .67     .75
   4  ANN FORBS
        DEPI      .01     1.
        LARE      .02     2.
               ANNUAL FORBS =    .02    .00    .04    .09     .10

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 109.99  123.30


     PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                    AND WOODY MAT FORM PLANTS
   *********************           ******************************
    OCT.15 TO APR.15 =   3.58        ARTR          174.03  195.08
    APR.15 TO JULY 1 =   2.94        OPPO            3.17    3.55
    JULY 1 TO SEPT.1 =  E1.00        PHHO             .21     .23
    SEPT.1 TO OCT.15 =    .98
    SEASON TOTAL     =  E8.50
    LONG TERM AVERAGE=   6.60

                         TOTAL SHRUB PRODUCTION =  177.41  198.87


                               TOTAL PRODUCTION =  287.40  322.17
                               **********************************
```

```
 2301.   MESA ANTEL     21      MAY 1980       IN NATIVE

                         NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1      TOTAL    AVE.     WGT./    LBS     KGS
CODE     NAME      PER-    ABS.     WGT.     WGT.     UNIT     PER     PER
                   CENT    PLOT     GMS/20   /PLOT    COVER    ACRE    HA.
                   COVER   FREQ.    SQ.FT.   OCCUR-   AREA
                   AREA    BASE              RENCES
                           20
*****************************************************************************
   6  SHRUBS
      ARTR         3.06     16.
      CHVI          .39      5.
      PHHO          .26      8.
   3  PER GRASS
      AGSM         1.07     19.     6.44      .32      .30   30.92    34.66
      POFE          .62      6.     2.31      .12      .19   11.09    12.43
      POSE          .27      4.      .53      .03      .10    2.54     2.65
      SIHY          .20      3.      .68      .03      .17    3.26     3.65
      STCO          .25      1.     1.12      .06      .22    5.37     6.02
                   TOTAL PERENNIAL GRASS PRODUCTION =        53.18    59.61
   2  PER FORBS
      TRGY          .01      1.
           PERENNIAL FORBS =         .02      .00      .10     .09      .10
   4  ANN FORBS
      SIAL          .45     18.
      UNK           .01      1.
                  ANNUAL FORBS =    2.29      .11      .25   10.99    12.32

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =             64.26    72.04


  PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                         AND WOODY MAT FORM PLANTS
********************                 ****************************
 OCT.15 TO APR.15 =     2.80           ARTR             149.45  167.54
 APR.15 TO JULY 1 =     3.20           CHVI               1.18    1.32
 JULY 1 TO SEPT.1 =     1.12           PHHO              15.66   17.55
 SEPT.1 TO OCT.15 =     1.10
 SEASON TOTAL     =     8.22
 LONG TERM AVERAGE=     7.59

                        TOTAL SHRUB PRODUCTION =  166.29  186.41


                             TOTAL PRODUCTION =  230.55  258.44
                             *********************************
  104.   OWL DRAW       25      MAY 1980       IN ARNO

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
**************************************************************************
   6  SHRUBS
        ARHO        .26      5.
        ARNO      20.14     17.
        HAAC        .15      1.
        JUOS        .01      1.
        PHHO        .33      9.
   3  PER GRASS
        AGSM        .13      5.      .86      .04      .34    4.12     4.62
        AGSP       1.27     13.     7.84      .39      .31   37.64    42.19
        KOCR        .44      6.     2.80      .14      .32   13.44    15.07
        POSE        .95     16.     3.18      .16      .17   15.26    17.11
                 TOTAL PERENNIAL GRASS PRODUCTION =          70.46    78.99
   2  PER FORBS
        AGGL        .01      1.
        ARHO2       .02      2.
        CAAN        .06      2.
        CRAC        .04      3.
        EROC        .06      6.
        LILE        .09      4.
        LOM         .02      2.
        LOOR        .06      6.
        OXSE        .28      9.
        PECL        .05      7.
        SELA        .03      2.
        ZIVE        .13     12.
              PERENNIAL FORBS =     7.97      .40      .49   38.26    42.89

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 108.72   121.88


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *********************               *****************************
   OCT.15 TO APR.15 =    E4.50          ARNO               137.40  154.02
   APR.15 TO JULY 1 =     2.10          ARTR                 1.50    1.68
   JULY 1 TO SEPT.1 =     1.35          ARHO                  .71     .80
   SEPT.1 TO OCT.15 =      .18          CHVI                  .73     .82
   SEASON TOTAL     =     8.13          HAAC                 2.18    2.45
   LONG TERM AVERAGE=     9.64          PHHO                 2.94    3.29

                          TOTAL SHRUB PRODUCTION =  145.46  163.06


                                 TOTAL PRODUCTION =  254.18  284.94
                                 ********************************
  104.   OWL DRAW       25       MAY 1980       IN ARTR

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1      TOTAL     AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.     WGT.      WGT.    UNIT     PER    PER
                   CENT    PLOT     GMS/20    /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.    SQ.FT.    OCCUR-  AREA
                   AREA    BASE               RENCES
                           20
*******************************************************************************
   6  SHRUBS
        ANRO         .10       1.
        ARNO        1.23       4.
        ARTR       10.80      16.
        CHVI         .44       4.
        PHHO         .14       5.
   3  PER GRASS
        AGSM        1.20      19.  13.76      .69     .57  66.07    74.06
        POSE        6.50      20.  28.91     1.45     .22 138.81   155.61
                 TOTAL PERENNIAL GRASS PRODUCTION = 204.88   229.67
   2  PER FORBS
        AGGL         .06       1.
        ALTE         .02       2.
        ASMI         .26       2.
        CRAC         .24      10.
        DOCO         .01       1.
        EROC         .34      17.
        LERE         .11       5.
        LOOR         .06       1.
        PECL         .03       3.
        SEIN         .02       1.
        TRGY         .22      12.
        VIAM         .10       3.
        ZIVE         .19      14.
            PERENNIAL FORBS =  12.93      .65     .39  62.08    69.59
   4  ANN FORBS
        DEPI         .01       2.
        UNK          .03       4.
               ANNUAL FORBS =    .12      .01     .17    .57      .64

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 267.53   299.90


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  ********************                ****************************
   OCT.15 TO APR.15 =    E4.50         ARNO              1.66     1.86
   APR.15 TO JULY 1 =     2.10         ARTR            101.45   113.72
   JULY 1 TO SEPT.1 =     1.35         MAVI               .80      .89
   SEPT.1 TO OCT.15 =      .18         OPPO               .93     1.04
   SEASON TOTAL     =     8.13         PHHO               .62      .70
   LONG TERM AVERAGE=     9.64

                              TOTAL SHRUB PRODUCTION =  105.46   118.22


                                  TOTAL PRODUCTION =  372.99   416.12
                                  **********************************
    406.   RED WASH 2    26     MAY 1980     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      5.50     3.
         CHVI      1.68     5.
         EROV       .15     1.
         PHHO       .98     7.
         TECA      1.65     1.
    3  PER GRASS
         AGSM      1.03    19.   9.08    .45    .44  43.59   48.86
         ORHY      1.26     9.   6.95    .35    .28  33.37   37.41
         POSE       .07     1.    .36    .02    .28   1.72    1.93
                 TOTAL PERENNIAL GRASS PRODUCTION =  78.68   88.20
    2  PER FORBS
         ALTE       .05     3.
         ARHD2      .01     1.
         CHDD       .02     4.
         ERAS       .05     1.
         SILI       .07    13.
             PERENNIAL FORBS =   1.62    .08    .44   7.77    8.71

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  86.45   96.91


     PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    ********************            ******************************
    OCT.15 TO APR.15 =   2.68        ARTR          185.28  207.70
    APR.15 TO JULY 1 =   2.67        CELA             .06     .07
    JULY 1 TO SEPT.1 =    .89        CHNA            2.06    2.31
    SEPT.1 TO OCT.15 =    .85        CHVI            2.89    3.24
    SEASON TOTAL     =   7.09        ERMI            1.81    2.02
    LONG TERM AVERAGE=   7.02        EROV            1.73    1.94
                                     PHHO           27.11   30.39
                                     TECA           18.21   20.42

                         TOTAL SHRUB PRODUCTION =  239.15  268.09


                               TOTAL PRODUCTION =  325.60  365.00
                               **********************************
```

```
   1C03.   SPOS ANT 7    23     MAY 1980      IN NATIVE

                            NUMBER OF PLOTS = 20
                             FLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL     AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.    WGT.      WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20    /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.    OCCUR-  AREA
                   AREA    BASE              RENCES
                           20
**************************************************************************
   6  SHRUBS
        ARTR     11.05      9.
        OPPO       .35      2.
   3  PER GRASS
        AGSM       .21     13.     1.84      .09     .45     8.83     9.90
        BOGR      1.02      4.     2.57      .13     .13    12.34    13.83
        ORHY       .32      7.     1.92      .10     .30     9.21    10.32
        POSE       .03     11.     2.81      .14     .17    13.49    15.12
        STCO       .02      1.      .05      .00     .13      .24      .27
                 TOTAL PERENNIAL GRASS PRODUCTION =         44.11    49.45
   2  PER FORBS
        ALTE       .03      4.
        ERPL       .05      1.
             PERENNIAL FORBS =      .91      .05     .61     4.36     4.99
   4  ANN FORBS
        LUPU       .01      1.
                ANNUAL FORBS =      .02      .00     .10      .09      .10

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =          48.56    54.44


    PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                           AND WOODY MAT FORM PLANTS
   *********************                 *****************************
   OCT.15 TO APR.15 =      3.16            ARTR           320.82   359.64
   APR.15 TO JULY 1 =      3.39            OPPO            16.76    18.79
   JULY 1 TO SEPT.1 =       .56            PHHO             2.65     2.97
   SEPT.1 TO OCT.15 =       .78
   SEASON TOTAL     =      7.89
   LONG TERM AVERAGE=      8.20

                           TOTAL SHRUB PRODUCTION =  340.23   381.40


                                  TOTAL PRODUCTION =  388.79   435.84
                                  *********************************
```

```
  1005.   SWEETWATER     22      MAY 1980       IN ARNO

                        NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT     AVE.    1X1     TOTAL     AVE.     WGT./    LBS    KGS
 CODE     NAME      PER-    ABS.    WGT.      WGT.     UNIT     PER     PER
                    CENT    PLOT    GMS/20    /PLOT   COVER    ACRE   HA.
                    COVER   FREQ.   SQ.FT.    OCCUR-  AREA
                    AREA    BASE              RENCES
                            20
**********************************************************************
   6  SHRUBS
       ARHO          .20      1.
       ARNO        17.40      9.
       ARTR         1.00      1.
       CHVI         1.05      3.
       EROV          .08      1.
       OPPO          .46      1.
       PHHO         1.18      5.
       TECA          .65      3.
   3  PER GRASS
       AGSM          .16      8.    2.12      .11      .66  10.17    11.40
       CAEL          .03      2.     .10      .01      .17    .48      .54
       CAFI         2.09      8.    7.75      .39      .19  37.21    41.71
       KOCR          .37      6.    2.32      .12      .32  11.13    12.48
       ORHY         1.86     14.   11.17      .56      .30  53.63    60.12
       POSE          .02      2.     .03      .00      .08    .14      .16
                   TOTAL PERENNIAL GRASS PRODUCTION = 112.76   126.40
   2  PER FORBS
       ARHO2         .01      1.
       COPA          .30     17.
       CYMO          .05      4.
            PERENNIAL FORBS =    5.77      .29      .81  27.70    31.05
   4  ANN FORBS
       DEPI          .01      2.
               ANNUAL FORBS =     .58      .03     2.90   2.78     3.12

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 143.24   160.57


   PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                           AND WOODY MAT FORM PLANTS
  ********************                  ****************************
  OCT.15 TO APR.15 =    3.18              ARFR               10.03   11.25
  APR.15 TO JULY 1 =    2.03              ARHO                 .86     .97
  JULY 1 TO SEPT.1 =     .90              ARNO               69.48   77.89
  SEPT.1 TO OCT.15 =    1.75              ARTR                5.90    6.61
  SEASON TOTAL     =    7.86              CHVI                 .85     .95
  LONG TERM AVERAGE=    8.88              EROV                3.06    3.43
                                          LEPU                 .96    1.07
                                          OPPO                2.94    3.29
                                          PHHO                8.01    8.98
                                          TECA                5.99    6.72

                            TOTAL SHRUB PRODUCTION =  108.08  121.16


                                  TOTAL PRODUCTION =  251.32  281.73
                                  *********************************
  1005.    SWEETWATER    22      MAY 1980      IN ARTR

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
PLANT   PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE    NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                 CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                 COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                 AREA    BASE             RENCES
                         20
************************************************************************
  6  SHRUBS
       ARTR       4.33      3.
       CHVI        .70      3.
       PHHO       2.34     10.
  3  PER GRASS
       AGSM        .19     11.    1.97     .10     .52    9.45    10.59
       CAEL        .26     12.    1.38     .07     .27    6.62     7.42
       CAFI        .36      7.    2.68     .13     .37   12.86    14.42
       KOCR       1.35     14.    6.45     .32     .24   30.97    34.72
       ORHY       5.29     18.   22.70    1.14     .21  108.99   122.18
       POSE        .15      4.     .18     .01     .06     .86      .96
                 TOTAL PERENNIAL GRASS PRODUCTION = 169.75   190.29
  2  PER FORBS
       ALTE        .05      4.
       ASMI        .57      3.
       CYMO        .06      4.
       PSTE        .09      5.
              PERENNIAL FORBS =   5.76     .29     .38   27.65    31.00
  4  ANN FORBS
       DEPI        .04      4.
       UNK         .04      1.
                 ANNUAL FORBS =    .22     .01     .15    1.05     1.18

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 198.45   222.46


    PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                      AND WOODY MAT FORM PLANTS
   ********************             ******************************
    OCT.15 TO APR.15 =   3.18          ARFR               4.78     5.36
    APR.15 TO JULY 1 =   2.03          ARNO               1.19     1.34
    JULY 1 TO SEPT.1 =    .90          ARTR              66.50    74.54
    SEPT.1 TO OCT.15 =   1.75          CHNA               5.16     5.79
    SEASON TOTAL     =   7.86          CHVI               8.83     9.90
    LONG TERM AVERAGE=   8.88          EROV                .52      .58
                                       LEPU               4.94     5.54
                                       OPPO                .78      .87
                                       PHHO              15.18    17.01

                         TOTAL SHRUB PRODUCTION =  107.88   120.94


                               TOTAL PRODUCTION =  306.33   343.40
                               **********************************
  1006.   UPPER GOVT    22     MAY 1980      IN NATIVE

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
************************************************************************
    6  SHRUBS
        ARTR      16.18     14.
        PHHO        .78     14.
    3  PER GRASS
        AGSM       1.28     20.  15.11     .76      .59   72.55    81.33
        KOCR       3.27     15.  18.73     .94      .29   89.93   100.81
        POSE       2.11     17.  10.54     .53      .25   50.60    56.72
                  TOTAL PERENNIAL GRASS PRODUCTION = 213.08   238.86
    2  PER FORBS
        ALTE        .03      5.
        ARHO2       .02      2.
        CAAN        .10      2.
        CRAC        .08      2.
        ERPU        .02      1.
        LOOR        .10      7.
        SPCO        .03      2.
        TRDU        .01      2.
        VIAM        .13      2.
             PERENNIAL FORBS =    4.51     .23      .44   21.65    24.27
    4  ANN FORBS
        ANSE        .03      1.
        DEPI        .03      5.
                 ANNUAL FORBS =    .03     .00      .03     .14      .16

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 234.87   263.29


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    ********************              ****************************
    OCT.15 TO APR.15 =   3.47          ARTR            130.64   146.45
    APR.15 TO JULY 1 =   4.09          OPPO              1.19     1.34
    JULY 1 TO SEPT.1 =    .51          PHHO              8.96    10.05
    SEPT.1 TO OCT.15 =    .90
    SEASON TOTAL     =   8.97
    LONG TERM AVERAGE=   9.25

                         TOTAL SHRUB PRODUCTION =  140.80   157.83


                              TOTAL PRODUCTION =  375.67   421.12
                              ********************************
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Table V. Vegetation cover data, precipitation and herbage production data alphabetically by exclosure, grazing treatment and shrub control treatment for summer 1980.

Exclosure	Page
Big Trails GRI	103
Boysen	105
Bud Kimball	107
Buffalo Creek	111
Burnt Wagon	113
Cedar Mountain	115
Cochran	116
Cumberland #1	120
Cumberland #2	124
Cumberland #3	128
Cumberland #4	132
Demer	134
Dutch Nick	136
Farson	138
Granite Mountain	140
Halogeton #1	144
Halogeton #2	145
Halogeton #3	146
Horse Creek	147
Kane Deer	148
Kane GRI	152
Kirby Creek	154
Lander Ant	156
Lower Government Draw	158
McGraw Flats	162
Medicine Lodge GRI	164
Mesa Antelope	166
North Butte Relic	168
Owl Draw	169
Red Wash #2	171
Round Top Relic	172
Sand Gulch	173
Shoshoni Ant #2	175
Shoshoni Ant #4	180
Shoshoni Ant #7	185
Shoshoni Ant #8	190
Shoshoni Ant #9	195
Shoshoni Ant #11	200
Smilo	205
Sweetwater	209
Two Mile Hill	213
Upper Government Draw	215
West Pasture	219

```
  2017.   BIG TRAILS     23    JULY 1980      IN SPRAY

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1    TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.   WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.  SQ.FT.   OCCUR-  AREA
                   AREA    BASE            RENCES
                           20
*****************************************************************************
    6  SHRUBS
        JUOS         .05       1.
    3  PER GRASS
        AGSP         .04       1.      .91      .05    1.14    4.36      4.89
        CAR          .12       2.      .54      .03     .23    2.59      2.90
        POSE         .19       3.      .61      .03     .16    2.92      3.27
        STCO         .03       1.      .35      .02     .58    1.68      1.88
                  TOTAL PERENNIAL GRASS PRODUCTION =          11.55     12.95
    5  ANN GRASS
        BRTE        4.18      19.
               ANNUAL GRASSES =  31.98     1.60     .38 153.55    172.13
    4  ANN FORBS
        DEPI         .02       3.
        EUSE         .03       2.
        GIPU         .03       4.
        PLPA         .04       3.
        SIAL         .04       2.
                 ANNUAL FORBS =  19.11      .96    6.83  91.76    102.86

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 256.86   287.94


    PRECIPITATION DATA
    RAIN GAUGE
  *********************
    OCT.15 TO APR.15 =    5.64
    APR.15 TO JULY 1 =    4.22
    JULY 1 TO SEPT.1 =    1.37
    SEPT.1 TO OCT.15 =     .99
    SEASON TOTAL     =   12.22
    LONG TERM AVERAGE=   13.02
```

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2017.   BIG TRAILS    23    JULY 1980     CUT NATIVE

                       NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.    1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE    NAME     PER-    ABS.    WGT.     WGT.    UNIT    PER    PER
                 CENT    PLOT    GMS/20   /PLOT   COVER   ACRE   HA.
                 COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA    BASE             RENCES
                         20
*****************************************************************
  6  SHRUBS
       ARTF         .22      2.
       JUOS       19.00      7.
  3  PER GRASS
       POSE         .38      6.    1.00     .05     .13    4.80     5.38
                 TOTAL PERENNIAL GRASS PRODUCTION =        4.80     5.38
  5  ANN GRASS
       BRTE        1.40     15.
              ANNUAL GRASSES =     6.33     .32     .23   30.39    34.07
  4  ANN FORBS
       GILE         .02      3.
       GIPU         .01      1.
       MEAL         .01      1.
       PLPL         .02      2.
                ANNUAL FORBS =     1.26     .06    1.58    6.05     6.78

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        41.24    46.23


   PRECIPITATION DATA
   RAIN GAUGE
 *********************
   OCT.15 TO APR.15 = 5.64
   APR.15 TO JULY 1 = 4.22
   JULY 1 TO SEPT.1 = 1.37
   SEPT.1 TO OCT.15 =  .99
   SEASON TOTAL     = 12.22
   LONG TERM AVERAGE= 13.02
 1002.   BOYSEN         17    JULY 1980      IN NATIVE

                        NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
PLANT   PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
CODE    NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                 CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                 COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA    BASE             RENCES
                         20
****************************************************************************
   6  SHRUBS
       OPPO         .12      5.
   3  PER GRASS
       BOGR        3.03     15.  16.09     .80     .27   77.25     86.60
                 TOTAL PERENNIAL GRASS PRODUCTION =      77.25     86.60
   2  PER FORBS
       AST          .02      2.
       GACO         .08      2.
       SPCO         .37     15.
           PERENNIAL FORBS =      9.91     .50    1.08   47.58     53.34
   4  ANN FORBS
       HAGL         .03      1.
              ANNUAL FORBS =       .10     .01     .17     .48       .54

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  125.31    140.47


  PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *********************              *****************************
  OCT.15 TO APR.15 =   1.05            ARSP              1.11      1.25
  APR.15 TO JULY 1 =   2.98            ATCO             23.72     26.59
  JULY 1 TO SEPT.1 =    .59            OPPO              7.57      8.49
  SEPT.1 TO OCT.15 =    .00
  SEASON TOTAL     =   4.62
  LONG TERM AVERAGE=   5.00

                            TOTAL SHRUB PRODUCTION =    32.41     36.33


                                  TOTAL PRODUCTION =  157.72  176.80
                                  *********************************
  1002.   BOYSEN          17    JULY 1980      CUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL     AVE.    WGT./     LBS     KGS
 CODE     NAME     PER-    ABS.    WGT.      WGT.    UNIT      PER     PER
                   CENT    PLOT    GMS/20    /PLOT   COVER     ACRE    HA.
                   COVER   FREQ.   SQ.FT.    OCCUR-  AREA
                   AREA    BASE              RENCES
                           20
*****************************************************************************
    6  SHRUBS
         ARSP        .45      1.
         OPPO        .18      4.
    3  PER GRASS
         BOGR       4.16     17.  22.04     1.10      .26 105.82   118.62
         SPAI        .03      1.    .12      .01      .20    .57      .64
                  TOTAL PERENNIAL GRASS PRODUCTION = 106.39   119.26
    2  PER FORBS
         AST         .01      1.
         GACO        .02      3.
         SPCO        .16     13.
              PERENNIAL FORBS =   2.73      .14      .76  13.11    14.70

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 119.50   133.96


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
      ********************            ****************************
      OCT.15 TO APR.15 =   1.05         ARSP                .62      .70
      APR.15 TO JULY 1 =   2.98         ATCO              36.35    40.74
      JULY 1 TO SEPT.1 =    .59         OPPO               6.66     7.46
      SEPT.1 TO OCT.15 =    .00
      SEASON TOTAL     =   4.62
      LONG TERM AVERAGE=   5.00

                        TOTAL SHRUB PRODUCTION =    43.63    48.91


                             TOTAL PRODUCTION =  163.13  182.87
                             ******************************
 2007.   BUD KIMBAL      7    JULY 1980      IN NATIVE

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1      TOTAL    AVE.     WGT./    LBS     KGS
CODE     NAME     PER-    ABS.     WGT.     WGT.     UNIT     PER     PER
                  CENT    PLOT     GMS/20   /PLOT    COVER    ACRE    HA.
                  COVER   FREQ.    SQ.FT.   OCCUR-   AREA
                  AREA    BASE              RENCES
                          20
*************************************************************************
   6  SHRUBS
        ARTR        6.92     17.
        PHHO         .28     10.
   3  PER GRASS
        AGSM         .44     19.    7.04     .35      .81   33.80    37.89
        POSE         .72     18.    1.66     .08      .12    7.97     8.93
                  TOTAL PERENNIAL GRASS PRODUCTION =        41.77    46.82
   5  ANN GRASS
        BRTE         .01      1.
               ANNUAL GRASSES =      .01      .00      .10     .04      .04
   2  PER FORBS
        CACH         .03      2.
        CRMO         .02      1.
        CYMO         .02      2.
        ERPU         .19     10.
        LERE         .01      1.
        SPCO         .01      1.
             PERENNIAL FORBS =      1.08      .05      .20    5.18     5.81
   4  ANN FORBS
        GIPU         .09      6.
        PLPA         .12      7.
                 ANNUAL FORBS =      .44      .02      .11    2.11     2.37

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            49.10    55.04


     PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                          AND WOODY MAT FORM PLANTS
    ********************                  ******************************
     OCT.15 TO APR.15 =   2.85              ARTR             189.50  212.43
     APR.15 TO JULY 1 =   1.95              OPPO              28.42   31.86
     JULY 1 TO SEPT.1 =   1.40              PHHO              16.82   18.85
     SEPT.1 TO OCT.15 =    .80
     SEASON TOTAL     =   7.00
     LONG TERM AVERAGE=   9.30

                          TOTAL SHRUB PRODUCTION =  234.74  263.14


                               TOTAL PRODUCTION =  283.84  318.18
                               ********************************
 2007.   BUD KIMBAL      7    JULY 1980     OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1     TOTAL    AVE.   WGT./    LBS    KGS
CODE    NAME     PER-   ABS.    WGT.     WGT.   UNIT     PER    PER
                 CENT   PLOT    GMS/20  /PLOT   COVER    ACRE   HA.
                 COVER  FREQ.   SQ.FT.  OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
**************************************************************************
   6  SHRUBS
        ARTR       3.64    20.
        OPPO        .44     4.
        PHHO        .43     9.
   3  PER GRASS
        AGSM        .69    19.    8.37     .42     .61   40.19    45.05
        POSE        .80    19.    2.66     .13     .17   12.77    14.32
                 TOTAL PERENNIAL GRASS PRODUCTION =      52.96    59.37
   5  ANN GRASS
        VUOC        .05     2.
              ANNUAL GRASSES =     .01     .00     .01     .04      .04
   2  PER FORBS
        CACH        .01     2.
        CYMO        .02     2.
        ERPU        .07     7.
             PERENNIAL FORBS =     .58     .03     .31    2.78     3.12
   4  ANN FORBS
        GIPU        .08     4.
        LARE        .01     1.
        PLPA        .09    10.
                ANNUAL FORBS =     .13     .01     .04     .62      .70

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =     56.40    63.22


   PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                        AND WOODY MAT FORM PLANTS
 ********************                ******************************
  OCT.15 TO APR.15 =     2.85          ARTR              144.75  162.27
  APR.15 TO JULY 1 =     1.95          OPPO                7.26    8.14
  JULY 1 TO SEPT.1 =     1.40          PHHO                7.49    8.40
  SEPT.1 TO OCT.15 =      .80          XASA                 .29     .32
  SEASON TOTAL     =     7.00
  LONG TERM AVERAGE=     9.30

                        TOTAL SHRUB PRODUCTION =  159.79  179.12


                              TOTAL PRODUCTION =  216.19  242.35
                              ***********************************
 2007.   BUD KIMBAL      8    JULY 1980     IN SPRAY

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
*****************************************************************************
   6  SHRUBS
        ARTR         .15      6.
        OPPO         .92      3.
   3  PER GRASS
        AGSM        1.32     20.   40.53     2.03     1.54 194.61   218.16
        POSE         .64     17.    4.93      .25      .39  23.67    26.53
        STCO         .50      6.    3.56      .18      .36  17.09    19.16
                   TOTAL PERENNIAL GRASS PRODUCTION = 235.37   263.85
   2  PER FORBS
        CYMO         .01      1.
        ERPU         .10      3.
             PERENNIAL FORBS =      1.83      .09      .87   8.78     9.84
   5  ANN GRASS
        BRTE         .66     16.
        VUOC         .04      5.
              ANNUAL GRASSES =      8.18      .41      .59  39.27    44.02
   4  ANN FORBS
        ANSE         .03      1.
        CAMI         .03      2.
        DEPI         .03      5.
        GIPU         .11      7.
        LARE         .08     10.
        LEDE         .03      6.
        PLPA         .08      6.
                ANNUAL FORBS =      1.43      .07      .19   6.86     7.69

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 290.28   325.40


     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
  ********************                   *****************************
    OCT.15 TO APR.15 =   2.85              ARTR             84.04    94.21
    APR.15 TO JULY 1 =   1.95              OPPO             19.66    22.04
    JULY 1 TO SEPT.1 =   1.40              PHHO              1.62     1.82
    SEPT.1 TO OCT.15 =    .80
    SEASON TOTAL     =   7.00
    LONG TERM AVERAGE=   9.30

                          TOTAL SHRUB PRODUCTION =  105.32   118.07


                                 TOTAL PRODUCTION =  395.60  443.47
                                 **********************************
 2007.   BUD KIMBAL      9    JULY 1980       OUT SPRAY

                         NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           20
****************************************************************************
   6  SHRUBS
       ARTR          .20     10.
       OPPO          .05      2.
       PHHO          .07      1.
   3  PER GRASS
       AGSM         1.30     20.   19.13      .96      .74   91.85   102.96
       POSE          .75     20.    3.94      .20      .26   18.91    21.20
               TOTAL PERENNIAL GRASS PRODUCTION = 110.76  124.16
   5  ANN GRASS
       VUOC          .02      3.
            ANNUAL GRASSES =      .02      .00      .07      .09       .10
   2  PER FORBS
       ERPU          .02      1.
           PERENNIAL FORBS =      .04      .00      .13      .19       .21
   4  ANN FORBS
       ANSE          .04      3.
       DEPI          .01      1.
       GIPU          .05      7.
       LARE          .07      8.
       LEDE          .02      2.
       PLPA         2.52     18.
              ANNUAL FORBS =  12.53      .63      .23   60.16     67.44

       ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 171.20  191.92


  PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                        AND WOODY MAT FORM PLANTS
********************                ******************************
 OCT.15 TO APR.15 = 2.85             ARTR             95.89  107.49
 APR.15 TO JULY 1 = 1.95             OPPO             18.67   20.92
 JULY 1 TO SEPT.1 = 1.40             PHHO              1.10    1.24
 SEPT.1 TO OCT.15 =  .80
 SEASON TOTAL     = 7.00
 LONG TERM AVERAGE= 9.30


                       TOTAL SHRUB PRODUCTION =  115.66  129.65


                            TOTAL PRODUCTION =  286.86  321.57
                            **********************************
  2002.   BUFFALO CK       8    JULY 1980      IN NATIVE

                          NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT   PLANT     AVE.    1X1     TOTAL     AVE.     WGT./     LBS     KGS
CODE    NAME      PER-    ABS.    WGT.      WGT.     UNIT      PER     PER
                  CENT    PLOT    GMS/20    /PLOT    COVER     ACRE    HA.
                  COVER   FREQ.   SQ.FT.    OCCUR-   AREA
                  AREA    BASE              RENCES
                          20
*******************************************************************************
   6  SHRUBS
        ARTP        8.85     13.
        OPPO         .01      1.
        PHHO        1.40     13.
        XASA         .66      7.
   3  PER GRASS
        AGSM         .37      9.    3.67      .18      .50   17.62    19.75
        AGSP        2.88     15.   32.72     1.64      .57  157.11   176.12
                  TOTAL PERENNIAL GRASS PRODUCTION = 174.73   195.87
   2  PER FORBS
             PERENNIAL FORBS =       .93      .05      .36    4.46     5.00
   3  PER GRASS
        KOCR         .06      1.    1.05      .05      .70    5.04     5.65
        POSE        1.10     17.    2.71      .14      .12   13.01    14.58
                  TOTAL PERENNIAL GRASS PRODUCTION = 192.78   216.11
   2  PER FORBS
        CAAN         .04      2.
        CRAC         .07      4.
        PECL         .03      1.
        SPCO         .07      8.
        TRGY         .01      2.
        VINU         .02      2.
             PERENNIAL FORBS =      6.46      .32     1.40   31.01    34.76
   4  ANN FORBS
        PLPA         .01      1.
                ANNUAL FORBS =       .02      .00      .10     .09      .10

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 228.34   255.97


    PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                         AND WOODY MAT FORM PLANTS
   ********************                *****************************
    OCT.15 TO APR.15 =  3.00             ANDI                2.44     2.74
    APR.15 TO JULY 1 =  3.15             ARTR               88.23    98.90
    JULY 1 TO SEPT.1 =  1.35             CELA                 .60      .67
    SEPT.1 TO OCT.15 =   .42             OPPO                4.74     5.32
    SEASON TOTAL     =  7.92             PHHO               28.49    31.94
    LONG TERM AVERAGE= 10.35             XASA               12.77    14.32

                            TOTAL SHRUB PRODUCTION =   137.27   153.88


                                  TOTAL PRODUCTION =  365.61   409.85
                                  **********************************
```

```
2002.   BUFFALO CK      8    JULY 1980       OUT NATIVE

                      NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           20
*****************************************************************************
   6  SHRUBS
        ANDI         .07      1.
        ARTR       14.08     14.
        PHHO         .31      5.
   3  PER GRASS
        AGSM         .46     15.    4.86     .24      .52  23.33    26.15
        AGSP        2.34     16.   22.50    1.13      .48 108.03   121.10
        BOGR         .01      1.     .01     .00      .05    .04      .04
        POSE        1.07     19.    2.54     .13      .12  12.19    13.66
                TOTAL PERENNIAL GRASS PRODUCTION = 143.59   160.96
   2  PER FORBS
        CYMO         .01      1.
        ERPU         .03      1.
        SPCO         .05      5.
        VINU         .01      1.
             PERENNIAL FORBS =       .54      .03      .30   2.59     2.90
   4  ANN FORBS
        PLPA         .10      5.
                 ANNUAL FORBS =      .22      .01      .11   1.05     1.18

      ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 147.23  165.04


  PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                          AND WOODY MAT FORM PLANTS
*********************                 ******************************
 OCT.15 TO APR.15 =   3.00               ANDI                .14      .16
 APR.15 TO JULY 1 =   3.15               ARTR             249.02   279.15
 JULY 1 TO SEPT.1 =   1.35               CFLA                .15      .17
 SEPT.1 TO OCT.15 =    .42               OPPO              10.58    11.86
 SEASON TOTAL     =   7.92               PHHO               8.48     9.51
 LONG TERM AVERAGE=  10.35               XASA                .05      .05

                            TOTAL SHRUB PRODUCTION =  268.43   300.91


                                  TOTAL PRODUCTION =  415.66  465.95
                                  ********************************
  2003.   BURNT WAG       7    JULY 1980      IN NATIVE

                     NUMBER OF PLOTS = 20
                        PLOT SIZE 1X10
 PLANT   PLANT   AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE    NAME    PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                 CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA   BASE             RENCES
                        20
***********************************************************************
    6  SHRUBS
         ATGA        4.83      20.  34.13    1.71     .04 163.86   183.69
    3  PER GRASS
         SIHY         .00       2.    .01     .00     .03    .04      .04
                 TOTAL PERENNIAL GRASS PRODUCTION =         .04      .04
    2  PER FORBS
         ALTE         .25      20.
         AST          .00       1.
         MACA         .09      15.
         MUDI         .09      20.
              PERENNIAL FORBS =     2.49     .12     .03  11.93    13.37
    4  ANN FORBS
         EUSE         .01       7.
         HAGL         .00       2.
         MONU         .07      19.
                 ANNUAL FORBS =      .65     .03     .04   3.11     3.49

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 178.94   200.59


    PRECIPITATION DATA
    RAIN GAUGE
  *******************
    OCT.15 TO APR.15 =  .76
    APR.15 TO JULY 1 = 4.04
    JULY 1 TO SEPT.1 = 1.51
    SEPT.1 TO OCT.15 =  .85
    SEASON TOTAL     = 7.16
    LONG TERM AVERAGE= 6.11
  2003.    BURNT WAG        6    JULY 1980    OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X10
 PLANT   PLANT   AVE.   1X1    TOTAL  AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.   WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20 /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT. OCCUR- AREA
                 AREA   BASE          RENCES
                        20
**********************************************************************
    6  SHRUBS
         ARSP      .02     1.
         ARSP      .02     1.
         ATGA     3.84    20.  32.40   1.62    .04 155.59  174.42
         OPPO      .01     1.
    3  PER GRASS
         BOGR      .05     1.    .25    .01    .02   1.18    1.32
         POSE      .08     4.    .23    .01    .01   1.08    1.21
         SIHY      .12    14.    .93    .05    .04   4.48    5.02
                 TOTAL PERENNIAL GRASS PRODUCTION =  6.74    7.56
    2  PER FORBS
         ALTE      .20    20.
         AST       .00     1.
         MACA      .12    20.
         MUDI      .10    20.
             PERENNIAL FORBS =  1.25    .06    .01   5.97    6.69
    4  ANN FORBS
         EUSE      .09    17.
         HAGL      .00     1.
         LATE      .00     1.
         MONU      .05    19.
         PLPA      .00     1.
                ANNUAL FORBS =  3.08    .15    .11  14.77   16.56

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 183.07  205.22


     PRECIPITATION DATA           PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                   AND WOODY MAT FORM PLANTS
    **********************       ******************************
    OCT.15 TO APR.15 =    .76      ARSP             .24     .27
    APR.15 TO JULY 1 =   4.04      ARTR            7.55    8.46
    JULY 1 TO SEPT.1 =   1.51
    SEPT.1 TO OCT.15 =    .85
    SEASON TOTAL     =   7.16
    LONG TERM AVERAGE=   6.11

                         TOTAL SHRUB PRODUCTION =    7.79    8.73


                               TOTAL PRODUCTION =  190.86  213.95
                               **********************************
    403.   CEDAR MT        5  AUGUST 1980     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT     AVE.   1X1    TOTAL   AVE.   WGT./   LBS    KGS
 CODE    NAME      PER-   ABS.   WGT.    WGT.   UNIT    PER    PER
                   CENT   PLOT   GMS/20  /PLOT  COVER   ACRE   HA.
                   COVER  FREC.  SQ.FT.  OCCUR- AREA
                   AREA   BASE           RENCES
                          20
***********************************************************************
   6  SHRUBS
        ARTR       20.30    10.
        ATCO         .04     1.
        ATGA        1.65     2.  15.64    .78    .47  75.09  84.18
        CELA         .01     1.
        CHVI         .53     3.
        TECA         .01     1.
        TESP         .46     3.
   3  PER GRASS
        AGSP         .06     2.    .39    .02    .33   1.87   2.10
        ORHY         .02     1.    .08    .00    .27    .38    .43
        POSE         .09     3.    .32    .02    .18   1.53   1.72
        SIHY         .79    13.  12.12    .61    .77  58.19  65.23
                   TOTAL PERENNIAL GRASS PRODUCTION = 61.97  69.47
   2  PER FORBS
        ARHO2        .09     5.
        PHLO       *****    13.
               PERENNIAL FORBS =  3.88    .19    .00  18.63  20.88
   4  ANN FORBS
        LARE         .02     1.
        SIAL         .02     1.
                  ANNUAL FORBS =  1.63    .08   2.04   7.82   8.77

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 163.51  183.29



     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                      AND WOODY MAT FORM PLANTS
     ********************            ******************************
     OCT.15 TO APR.15 =  3.54         ARSP              .69    .78
     APR.15 TO JULY 1 = E3.00         ARTR           272.16 305.09
     JULY 1 TO SEPT.1 =   .98         ATCO            32.79  36.76
     SEPT.1 TO OCT.15 = E1.20         CHVI            18.72  20.99
     SEASON TOTAL     = E8.72         KOAM             1.89   2.12
     LONG TERM AVERAGE=  8.15         PHHO              .94   1.05
                                      TESP             1.86   2.09

                          TOTAL SHRUB PRODUCTION =   329.05 368.87


                               TOTAL PRODUCTION =    492.56 552.16
                               **********************************
```

```
  1501.   COCHRAN          21     JULY 1980       IN NATIVE

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
 PLANT    PLANT     AVE.     1X1      TOTAL     AVE.     WGT./    LBS    KGS
 CODE     NAME      PER-     ABS.     WGT.      WGT.     UNIT     PER    PER
                    CENT     PLOT     GMS/20    /PLOT    COVER    ACRE   HA.
                    COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                    AREA     BASE               RENCES
                             20
*******************************************************************************
    6  SHRUBS
         ARTR       18.37      18.
         PHHO         .25       2.
         OPPO         .20       2.
    3  PER GRASS
         AGSM         .85      19.   31.96     1.60     1.87 153.46   172.03
         AGSP         .05       1.     .40      .02      .44   1.92     2.15
         POSE        1.85      14.    6.17      .31      .17  29.62    33.20
                  TOTAL PERENNIAL GRASS PRODUCTION = 185.00   207.39
    5  ANN GRASS
         BRTE         .72      19.
         VUOC         .03       2.
                ANNUAL GRASSES =     3.65      .18      .24  17.52    19.64
    2  PER FORBS
         ALTE         .02       2.
         ERPU         .01       1.
               PERENNIAL FORBS =      .16      .01      .32    .76      .85
    4  ANN FORBS
         DEPI         .03       3.
         GIPU         .16      10.
         LARE         .01       1.
         LEDE         .01       1.
         PLPA         .07       2.
                  ANNUAL FORBS =      .33      .02      .06   1.58     1.77

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 204.86  229.65


   PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                          AND WOODY MAT FORM PLANTS
  *********************                ******************************
   OCT.15 TO APR.15 =   3.45             ARTR              447.04  501.13
   APR.15 TO JULY 1 =   2.50             OPPO               21.55   24.16
   JULY 1 TO SEPT.1 =   1.75             PHHO                2.14    2.40
   SEPT.1 TO OCT.15 =    .50
   SEASON TOTAL     =   8.20
   LONG TERM AVERAGE=  10.23

                           TOTAL SHRUB PRODUCTION =  470.74  527.70


                                TOTAL PRODUCTION =  675.60  757.35
                                ********************************
  1501.   COCHRAN         21    JULY 1980      OUT NATIVE

                        NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20  /PLOT    COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.  OCCUR-   AREA
                  AREA    BASE            RENCES
                          20
********************************************************************************
   6  SHRUBS
        ARTR      10.65     15.
        PHHO        .21      3.
   3  PER GRASS
        AGSM       1.76     20.   30.78    1.54      .87  147.79   165.67
        POSE       1.78     20.    4.64     .23      .13   22.27    24.96
        STCO        .22      3.    1.28     .06      .30    6.14     6.88
                 TOTAL PERENNIAL GRASS PRODUCTION = 176.20   197.52
   5  ANN GRASS
        BRTE        .56     17.
        VUOC        .53     11.
               ANNUAL GRASSES =    3.83     .19      .18   18.39    20.62
   2  PER FORBS
        SPCO        .04      4.
        ERPU        .01      2.
             PERENNIAL FORBS =      .49     .02      .49    2.35     2.63
   4  ANN FORBS
        CHLE        .03      3.
        DEPI        .01      2.
        GIPU        .01      1.
        LARE        .01      2.
        LEDE        .06      8.
        PLPA        .55     12.
                ANNUAL FORBS =     2.35     .12      .18   11.28    12.64

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 208.22   233.41


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    ********************               ******************************
     OCT.15 TO APR.15 =     3.45         ARTR              146.43   164.15
     APR.15 TO JULY 1 =     2.50         OPPO                4.63     5.20
     JULY 1 TO SEPT.1 =     1.75         PHHO                3.10     3.48
     SEPT.1 TO OCT.15 =      .50
     SEASON TOTAL     =     8.20
     LONG TERM AVERAGE=    10.23

                          TOTAL SHRUB PRODUCTION =   154.17   172.83


                               TOTAL PRODUCTION =   362.39   406.24
                               ***********************************
  1501.   COCHRAN        21    JULY 1980      IN CULTIVA

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1    TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.   WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT   GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.  SQ.FT.   OCCUR-  AREA
                   AREA    BASE            RENCES
                           20
**************************************************************************
    6  SHRUBS
         ARTR      16.43    19.
         PHHO        .70     8.
    3  PER GRASS
         AGSM        .50    17.   11.96     .60    1.20   57.42    64.37
         POSE       1.14    16.    2.67     .13     .12   12.82    14.37
                  TOTAL PERENNIAL GRASS PRODUCTION =      70.24    78.74
    5  ANN GRASS
         BRTE        .39    10.
         VUOC        .02     2.
                ANNUAL GRASSES =    .96     .05     .12    4.60     5.16
    2  PER FORBS
         SPCO        .04     4.
               PERENNIAL FORBS =    .42     .02     .53    2.01     2.25
    4  ANN FORBS
         CHLE        .01     1.
         DEPI        .02     1.
         GIPU        .04     4.
         LARE        .01     1.
         PLPA        .20     7.
                  ANNUAL FORBS =    .57     .03     .11    2.73     3.06

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =      79.58    89.21


      PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    ********************                 ******************************
     OCT.15 TO APR.15 =    3.45            ARTR              412.43   462.34
     APR.15 TO JULY 1 =    2.50            CELA                3.03     3.40
     JULY 1 TO SEPT.1 =    1.75            OPPO                5.48     6.14
     SEPT.1 TO OCT.15 =     .50            PHHO                9.00    10.09
     SEASON TOTAL     =    8.20
     LONG TERM AVERAGE=   10.23

                           TOTAL SHRUB PRODUCTION =  429.95   481.98


                                TOTAL PRODUCTION =  509.53   571.19
                                *********************************
 1501.   COCHRAN          21    JULY 1980      OUT SPRAY

                        NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1     TOTAL    AVE.     WGT./    LBS     KGS
CODE     NAME     PER-   ABS.    WGT.     WGT.     UNIT     PER     PER
                  CENT   PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-   AREA
                  AREA   BASE             RENCES
                         20
*****************************************************************************
    6  SHRUBS
         ARTR       .69      8.
         OPPO       .18      2.
         PHHO       .27      3.
    3  PER GRASS
         AGSM      2.71     20.   53.60    2.68      .99  257.37   288.51
         BOGR       .38      2.     .73     .04      .10    3.50     3.92
         POSE      2.17     19.    4.41     .22      .10   21.17    23.73
         STCO       .26      4.    3.87     .19      .76   18.58    20.83
                 TOTAL PERENNIAL GRASS PRODUCTION = 300.62   337.00
    5  ANN GRASS
         BRTE       .85     19.
         VUOC      1.34     19.
              ANNUAL GRASSES =    8.09     .40      .18   38.84    43.54
    2  PER FORBS
         ERPU       .01      1.
             PERENNIAL FORBS =     .01     .00      .10     .04      .04
    4  ANN FORBS
         ANSE       .03      1.
         CHLE       .02      4.
         DEPI       .01      2.
         GIPU       .04      6.
         LARE       .05      6.
         LEDE       .06      7.
         PLPA       .55     15.
                ANNUAL FORBS =    2.77     .14      .18   13.30    14.91

       ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 352.80   395.49


  PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                        AND WOODY MAT FORM PLANTS
*******************                 ****************************
 OCT.15 TO APR.15 =  3.45              ARTR                 5.64     6.33
 APR.15 TO JULY 1 =  2.50              OPPO                 8.82     9.89
 JULY 1 TO SEPT.1 =  1.75              PHHO                 2.14     2.40
 SEPT.1 TO OCT.15 =   .50
 SEASON TOTAL     =  8.20
 LONG TERM AVERAGE= 10.23

                         TOTAL SHRUB PRODUCTION =   16.61    18.62


                              TOTAL PRODUCTION =  369.41   414.11
                              ******************************
 1901.   CUMBER 1         3  AUGUST 1980        IN NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT   PLANT     AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE    NAME      PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                  AREA    BASE             RENCES
                          20
*****************************************************************
   6  SHRUBS
        ARTR       1.00      1.
        ATGA       3.80      6.   22.32    1.12      .29 107.17  120.14
        CFLA        .72      2.
        CHVI        .08      2.
        SAVE       6.00      6.
   3  PER GRASS
        AGSP       1.59     18.   31.85    1.59      .84 152.93  171.43
        ORHY        .22      4.    3.78     .19      .86  18.15   20.35
        POFE        .11      2.     .77     .04      .35   3.69    4.14
        POSE        .15      3.    1.10     .06      .37   5.28    5.92
        SIHY        .55      9.    6.95     .35      .63  33.37   37.41
                  TOTAL PERENNIAL GRASS PRODUCTION = 213.42  239.24
   2  PER FORBS
        PHLO        .05      2.
              PERENNIAL FORBS =     .21      .01      .21   1.00    1.12
   4  ANN FORBS
        DEPI        .05      2
        LARE        .15      8.
        MONU        .01      2.
        POAV        .01      2.
                 ANNUAL FORBS =    1.76      .09      .40   8.45    9.47

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 330.04  369.97


   PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                       AND WOODY MAT FORM PLANTS
  *********************             ******************************
   OCT.15 TO APR.15 =   4.67          ARTR              26.11   29.27
   APR.15 TO JULY 1 =   2.68          CELA               3.31    3.71
   JULY 1 TO SEPT.1 =   1.21          CHVI              16.97   19.02
   SEPT.1 TO OCT.15 =   1.70          SAVE             196.11  219.84
   SEASON TOTAL     =  10.26          TESP               7.98    8.95
   LONG TERM AVERAGE=   7.91

                           TOTAL SHRUB PRODUCTION =  250.49  280.80


                                 TOTAL PRODUCTION =  580.53  650.77
                                 ******************************
   1901.  CUMBER 1     3  AUGUST 1980     OUT NATIVE

                    NUMBER OF PLOTS = 20
                      PLOT SIZE 1X1
 PLANT  PLANT  AVE.   1X1   TOTAL   AVE.  WGT./  LBS   KGS
 CODE   NAME   PER-   ABS.  WGT.    WGT.  UNIT   PER   PER
               CENT   PLOT  GMS/20  /PLOT COVER  ACRE  HA.
               COVER  FREQ. SQ.FT.  OCCUR- AREA
               AREA   BASE          RENCES
                      20
******************************************************************
    6 SHRUBS
        ATGA      4.09  7.    31.07  1.55   .38 149.18  167.23
        CHVI       .12  4.
        PHHO       .09  2.
        SAVE      1.13  2.
    3 PER GRASS
        AGSM      1.81 20.    24.07  1.20   .66 115.57  129.55
        POSE       .48  6.      .75   .04   .08   3.60    4.04
        SIHY       .07  2.      .15   .01   .12    .72     .81
             TOTAL PERENNIAL GRASS PRODUCTION = 119.89  134.40
    2 PER FORBS
        PHLO       .39 14.
        TRGY       .04  3.
           PERENNIAL FORBS =   2.28   .11   .27  10.94   12.26
    4 ANN FORBS
        ATAR       .01  1.
        DEPI       .01  1.
        LARE       .36 15.
        MONU       .04  4.
        UNK        .01  1.
              ANNUAL FORBS =   4.35   .22   .52  20.88   23.41

       ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 300.89  337.30


     PRECIPITATION DATA          PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                  AND WOODY MAT FORM PLANTS
   ********************          ****************************
    OCT.15 TO APR.15 = 4.67        ARTR           5.62    6.30
    APR.15 TO JULY 1 = 2.68        CHVI           7.52    8.43
    JULY 1 TO SEPT.1 = 1.21        SAVE          29.96   33.59
    SEPT.1 TO OCT.15 = 1.70        TESP          26.08   29.24
    SEASON TOTAL     =10.26
    LONG TERM AVERAGE= 7.91

                     TOTAL SHRUB PRODUCTION =    69.18   77.55


                            TOTAL PRODUCTION =  370.07  414.85
                             *********************************
   1901.   CUMBER 1        3  AUGUST 1980      IN SPRAY

                      NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
 PLANT   PLANT   AVE.    1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-    ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT    PLOT   GMS/20  /PLOT   COVER   ACRE  HA.
                 COVER   FREQ.  SQ.FT.  OCCUR-  AREA
                 AREA    BASE           RENCES
                         20
*************************************************************************
    6  SHRUBS
         PHHO        .02     1.
         SAVE      19.52     6.
    3  PER GRASS
         AGSM       1.14    17.   35.44   1.77   1.56  170.17  190.76
         ORHY        .35     4.   13.75    .69   1.96   66.02   74.01
         POFE        .62     6.    6.59    .33    .53   31.64   35.47
         POSE       1.66    13.   11.38    .57    .34   54.64   61.25
         SIHY        .67     8.   26.57   1.33   1.98  127.58  143.02
                 TOTAL PERENNIAL GRASS PRODUCTION =    450.05  504.51
    2  PER FORBS
         PHLO        .04     2.
             PERENNIAL FORBS =      .08    .00    .10     .38     .43
    4  ANN FORBS
         ATAR        .05     3.
         CHE         .03     2.
         DEPI        .01     1.
         MONU        .04     4.
         UNK         .01     1.
                ANNUAL FORBS =    24.69   1.23   9.50  118.55  132.89

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =    566.98  637.63


      PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    *********************            *******************************
     OCT.15 TO APR.15 =   4.67         APTR            20.20   22.65
     APR.15 TO JULY 1 =   2.68         CHVI              .77     .87
     JULY 1 TO SEPT.1 =   1.21         SAVE           323.46  362.59
     SEPT.1 TO OCT.15 =   1.70
     SEASON TOTAL     =  10.26
     LONG TERM AVERAGE=   7.91

                          TOTAL SHRUB PRODUCTION =    344.43  386.11


                                TOTAL PRODUCTION =    913.41 1023.94
                                ************************************
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```
  1901.   CUMBER 1       3  AUGUST 1980      OUT SPRAY

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
************************************************************************
   6  SHRUBS
        ATGA      7.65    7.  135.01   6.75    .66 648.27  726.71
        CHVI       .15    1.
        SAVE      2.25    1.
   3  PER GRASS
        AGSM      1.77   17.   29.01   1.45    .82 139.29  156.14
        ORHY       .06    1.     .77    .04    .64   3.69    4.14
        POSE      1.77   14.    3.26    .16    .09  15.65   17.54
                TOTAL PERENNIAL GRASS PRODUCTION = 158.63  177.82
   2  PER FORBS
        PHLO       .22    9.
        TRGY       .03    2.
            PERENNIAL FORBS =   2.00    .10    .42   9.60   10.76
   4  ANN FORBS
        ATAR       .26   13.
        LARE       .52   20.
        MONU       .31   13.
        UNK        .03    2.
               ANNUAL FORBS =  60.68   3.03   2.73 291.36  326.61

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =1107.86 1241.91


     PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                    AND WOODY MAT FORM PLANTS
   **********************          *******************************
    OCT.15 TO APR.15 =   4.67        ARTR            1.14    1.28
    APR.15 TO JULY 1 =   2.68        CHVI            2.74    3.08
    JULY 1 TO SEPT.1 =   1.21        SAVE           25.24   28.30
    SEPT.1 TO OCT.15 =   1.70
    SEASON TOTAL     =  10.26
    LONG TERM AVERAGE=   7.91

                         TOTAL SHRUB PRODUCTION =   29.13   32.65


                               TOTAL PRODUCTION = 1136.99 1274.56
                               **********************************
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```
1201.   CUMBER 2          4  AUGUST 1980       IN NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
*************************************************************************
  6  SHRUBS
       ARLO        7.45     13.
       CHVI        4.89     15.
       ERFL         .71      8.
       LEPU         .01      1.
       PHHO         .01      1.
       PHMU         .45      2.
       TECA        1.32      2.
  3  PER GRASS
       AGSM        2.14     20.   42.72     2.14     1.00 205.12   229.94
       POAM        1.63     12.   12.80      .64      .39  61.46    68.90
       POFE         .14      2.     .53      .03      .19   2.54     2.85
       STCO2        .04      1.     .34      .02      .43   1.63     1.83
                  TOTAL PERENNIAL GRASS PRODUCTION = 270.75   303.51
  2  PER FORBS
       ARHO2        .05      4.
       ASCI         .11      4.
       ASDI         .03      2.
       CAS          .03      1.
       COPA         .09      4.
       LILE         .07      7.
       MECI         .36     13.
       PHLO         .15      7.
       TRGY         .29     16.
       VINU         .01      1.
              PERENNIAL FORBS =  19.36     .97      .82  92.96   104.21
  4  ANN FORBS
       DEPI         .30     15.
                  ANNUAL FORBS =  1.25     .06      .21   6.00     6.73

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 369.71   414.44


   PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                          AND WOODY MAT FORM PLANTS
********************                   ****************************
  OCT.15 TO APR.15 =  7.92               ARLO           130.41  146.19
  APR.15 TO JULY 1 =  2.63               CHVI           359.24  402.71
  JULY 1 TO SEPT.1 =  1.10               LEPU             5.00    5.61
  SEPT.1 TO OCT.15 =  1.98               PHMU             3.53    3.95
  SEASON TOTAL     = 13.63               TECA            32.55   36.49
  LONG TERM AVERAGE=  9.39

                        TOTAL SHRUB PRODUCTION =  530.74  594.96


                              TOTAL PRODUCTION =  900.45 1009.40
                              **********************************
  1201.   CUMBER 2       4  AUGUST 1980     OUT NATIVE

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
*****************************************************************************
    6  SHRUBS
         ANDI          .10      2.
         ARLO         6.70     15.
         CHVI         2.73      8.
         ERFL          .11      2.
         ERMI          .34      6.
         SYAL         1.05      1.
    3  PER GRASS
         AGSM         1.70     16.  18.98      .95      .56   91.13   102.16
         POAM          .75      7.   6.15      .31      .41   29.53    33.10
         POSE         1.92     13.   5.24      .26      .14   25.16    28.20
                  TOTAL PERENNIAL GRASS PRODUCTION = 145.82  163.46
    2  PER FORBS
         AGGL          .03      2.
         ARHO2         .02      3.
         ASCI          .20      2.
         CAS           .02      1.
         COPA          .02      2.
         CORA          .01      1.
         ERPU          .02      2.
         MECI          .22      5.
         PHLO          .22     11.
         SEN           .19      4.
         TRGY          .41     18.
               PERENNIAL FORBS =  16.69      .83      .63   80.14    89.84
    4  ANN FORBS
         DEPI          .09     11.
         SILI          .02      4.
                 ANNUAL FORBS =      .97      .05      .44    4.65     5.21

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 230.61  258.51


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *******************                 ****************************
  OCT.15 TO APR.15 =    7.92            ARLO             79.70    89.34
  APR.15 TO JULY 1 =    2.63            CHVI            235.12   263.57
  JULY 1 TO SEPT.1 =    1.10            ERMI              8.46     9.48
  SEPT.1 TO OCT.15 =    1.98            TECA              5.23     5.87
  SEASON TOTAL     =   13.63
  LONG TERM AVERAGE=    9.39

                         TOTAL SHRUB PRODUCTION =  328.51  368.26


                              TOTAL PRODUCTION =  559.12  626.78
                              ******************************
```

```
1201.   CUMBER 2          4  AUGUST 1980       IN SPRAY

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                  CENT    PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                  COVER   FREC.   SQ.FT.   OCCUR-   AREA
                  AREA    BASE             RENCES
                          20
************************************************************************************
   6  SHRUBS
        ARTR       1.00      1.
        CHVI       2.50      1.
   3  PER GRASS
        AGSM       4.15     20.   99.68     4.98     1.20 478.63   536.54
        POAM       3.92     20.   53.20     2.66      .68 255.44   286.35
        POSE        .68      5.    2.02      .10      .15   9.69    10.86
        STCO2       .29      1.    4.71      .24      .81  22.61    25.35
                  TOTAL PERENNIAL GRASS PRODUCTION = 766.37   859.10
   2  PER FORBS
        AGGL        .07      7.
        ARHO2       .02      2.
        LILE        .46      9.
        PHLO        .24     10.
        TRGY        .29     14.
              PERENNIAL FORBS =  53.25     2.66     2.45 255.68   286.62
   4  ANN FORBS
        CHLE        .01      1.
        DEPI        .11     10.
                 ANNUAL FORBS =     .47      .02      .20   2.25     2.52

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =1024.30 1148.24


     PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                           AND WOODY MAT FORM PLANTS
   *********************                  ******************************
    OCT.15 TO APR.15 =   7.92               CHVI            191.79  214.99
    APR.15 TO JULY 1 =   2.63               EPMI              8.62    9.67
    JULY 1 TO SEPT.1 =   1.10               TECA              2.49    2.79
    SEPT.1 TO OCT.15 =   1.98
    SEASON TOTAL     =  13.63
    LONG TERM AVERAGE=   9.39

                          TOTAL SHRUB PRODUCTION =  202.90  227.45


                               TOTAL PRODUCTION = 1227.20 1375.69
                               ********************************
```

```
  1201.   CUMBER 2         4  AUGUST 1980      OUT SPRAY

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
*****************************************************************************
    6  SHRUBS
         CHVI        3.33      6.
         PHHO         .30      2.
         TECA         .20      1.
    3  PER GRASS
         AGSM        2.21     20.   21.81     1.09      .49 104.72   117.39
         POAM         .11      3.     .87      .04      .40   4.17     4.67
         POFE         .07      1.     .69      .03      .49   3.31     3.71
         POSE        2.47     15.    6.24      .31      .13  29.96    33.59
                TOTAL PERENNIAL GRASS PRODUCTION = 142.16   159.36
    2  PER FORBS
         AGGL         .01      1.
         ASCI         .06      2.
         LILE         .02      3.
         PHLO         .45     17.
         TRGY         .23     12.
              PERENNIAL FORBS =    6.16      .31      .40  29.57    33.15
    4  ANN FORBS
         CHLE         .01      2.
         DEPI         .13     13.
         LARE         .04      4.
         LEDE         .03      5.
         MONU         .07      7.
                 ANNUAL FORBS =    1.47      .07      .27   7.05     7.90

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 178.78   200.41


     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                     AND WOODY MAT FORM PLANTS
     ********************            ***************************
      OCT.15 TO APR.15 =    7.92        AMAL                .99     1.11
      APR.15 TO JULY 1 =    2.63        ARLO              36.83    41.29
      JULY 1 TO SEPT.1 =    1.10        CHVI             182.74   204.85
      SEPT.1 TO OCT.15 =    1.98        ERMI               2.66     2.98
      SEASON TOTAL     =   13.63        TECA               4.15     4.65
      LONG TERM AVERAGE=    9.39

                          TOTAL SHRUB PRODUCTION =  227.37   254.88


                               TOTAL PRODUCTION =  406.15   455.29
                               ******************************
```

```
1202.   CUMBER 3          4  AUGUST 1980       IN NATIVE

                       NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1      TOTAL     AVE.     WGT./    LBS     KGS
CODE     NAME     PER-    ABS.     WGT.      WGT.     UNIT     PER     PER
                  CENT    PLOT     GMS/20    /PLOT    COVER    ACRE    HA.
                  COVER   FREC.    SQ.FT.    OCCUR-   AREA
                  AREA    BASE               RENCES
                          20
*****************************************************************************
  6  SHRUBS
        ANDI          .17      2.
        ARTR        24.64     13.
        CHVI          .30      5.
        ERMI          .03      1.
        PHHO          .07      2.
  3  PER GRASS
        AGSM         1.02     16.    27.10      1.36      1.33  130.12   145.86
        AGSP          .56      5.     7.19       .36       .65   34.52    38.70
        ORHY          .01      1.      .01       .00       .10     .04      .04
        POFE          .17      2.     1.44       .07       .44    6.91     7.75
        POSE         1.34     11.     5.85       .29       .22   28.08    31.48
        SIHY          .89      7.     7.53       .38       .42   36.15    40.52
        STCC         1.18      7.    16.55       .83       .70   79.46    89.07
                TOTAL PERENNIAL GRASS PRODUCTION = 315.28   353.43
  5  ANN GRASS
        BRTE          .01      1.
             ANNUAL GRASSES =         .10       .01       .50     .48      .54
  2  PER FORBS
        ARHO2         .02      2.
        ASCI          .34      3.
        ASDE          .06      2.
        CRAC          .01      1.
        CORA          .09     10.
        PHLO          .30     16.
        TRGY          .65     17.
          PERENNIAL FORBS =  26.37      1.32       .79  126.62   141.94
  4  ANN FORBS
        CHLE          .01      1.
        DEPI          .04      5.
        GIPU          .12      8.
        SILI          .03      1.
              ANNUAL FORBS =  1.79       .09       .48    8.59     9.63

      ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 450.97   505.54


  PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                          AND WOODY MAT FORM PLANTS
*********************                 *****************************
 OCT.15 TO APR.15 =    9.87             ARTR              548.98   615.41
 APR.15 TO JULY 1 =    1.85             CHVI                8.46     9.48
 JULY 1 TO SEPT.1 =    1.10             ERMI                4.16     4.66
 SEPT.1 TO OCT.15 =    2.40             PHHO                1.85     2.07
 SEASON TOTAL     =   15.32             TECA                 .59      .66
 LONG TERM AVERAGE=   11.07

                        TOTAL SHRUP PRODUCTION =  564.04   632.28
  1202.   CUMBER 3        4  AUGUST 1980      OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                  AREA    BASE             RENCES
                          20
*****************************************************************
   6  SHRUBS
        ANDI         .42     2.
        ARTR       10.45    10.
        CHVI        2.65    10.
        ERMI         .88     3.
        PHHO         .07     2.
        PHMU         .75     1.
        SYAL         .05     1.
   3  PER GRASS
        AGSM         .61    13.  11.19      .56      .92  53.73    60.23
        AGSP         .08     1.    .94      .05      .63   4.51     5.06
        CAEL         .01     1.    .01      .00      .05    .04      .04
        POSE         .58     9.   0.00     0.00     0.00   0.00     0.00
        SIHY         .50    10.   9.46      .47      .96  45.42    50.92
        STCO         .22     3.   1.83      .09      .42   8.78     9.84
        STCO2        .48     5.   5.84      .29      .61  28.04    31.43
                  TOTAL PERENNIAL GRASS PRODUCTION = 140.52   157.52
   2  PER FORBS
        AGGL         .03     2.
        ARHO2        .07     6.
        ASDI         .03     1.
        CORA         .20    10.
        CYMO         .01     1.
        PHLO         .48    12.
        TRGY         .62    15.
              PERENNIAL FORBS =   34.08     1.70     1.19 163.64   183.44
   4  ANN FORBS
        CHLE         .03     4.
        DEPI         .05     3.
        GIPU         .16     8.
        MONU         .01     1.
                 ANNUAL FORBS =    1.41      .07      .29   6.77     7.59

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 310.93   346.55


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   ********************                ****************************
    OCT.15 TO APR.15 =     9.87          ARTR              333.56  373.92
    APR.15 TO JULY 1 =     1.85          CHVI              141.71  158.86
    JULY 1 TO SEPT.1 =     1.10          ERMI                8.63    9.68
    SEPT.1 TO OCT.15 =     2.40          OPPO                4.35    4.87
    SEASON TOTAL     =    15.32          PHHO                4.59    5.15
    LONG TERM AVERAGE=    11.07          TECA                1.00    1.12

                          TOTAL SHRUP PRODUCTION =  493.84  553.59
   1202.    CUMBER 3          4  AUGUST 1980       IN SPRAY

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
  PLANT    PLANT     AVE.     1X1     TOTAL     AVE.     WGT./    LBS    KGS
  CODE     NAME      PER-     ABS.    WGT.      WGT.     UNIT     PER    PER
                     CENT     PLOT    GMS/20    /PLOT    COVER    ACRE   HA.
                     COVER    FREQ.   SQ.FT.    OCCUR-   AREA
                     AREA     BASE              RENCES
                              20
*************************************************************************************
     6  SHRUBS
          CHVI        1.34       5.
          PHHO         .07       1.
     3  PER GRASS
          AGSM        2.48      19.   77.77     3.89     1.57 373.42   416.60
          AGSP        1.71       6.   40.50     2.03     1.18 194.46   217.99
          ORHY         .06       1.     .30      .02      .25   1.44     1.61
          POSE         .63       6.    2.64      .13      .21  12.67    14.20
          STCO        1.16       7.   16.70      .83      .71  80.18    89.88
                   TOTAL PERENNIAL GRASS PRODUCTION = 662.17   742.29
     2  PER FORBS
          AGGL         .14       7.
          ARHO2        .06       5.
          ASCI         .11       1.
          PHLO         .67      17.
          TAOF         .01       1.
          TRGY         .59      12.
               PERENNIAL FORBS =  16.26      .91      .59  87.67    98.28
     4  ANN FORBS
          CHLF         .02       2.
          DEPI         .10       8.
          GIPU         .01       2.
          SILI         .01       1.
                  ANNUAL FORBS =    .70      .04      .28   3.36     3.77

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 753.20   844.34


    PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                          AND WOODY MAT FORM PLANTS
    ********************                ******************************
    OCT.15 TO APR.15 =   9.87            ARTR              345.47   387.27
    APR.15 TO JULY 1 =   1.85            CHVI              288.61   323.53
    JULY 1 TO SEPT.1 =   1.10            ERMI               10.43    11.69
    SEPT.1 TO OCT.15 =   2.40            TECA                 .87      .98
    SEASON TOTAL     =  15.32
    LONG TERM AVERAGE=  11.07

                             TOTAL SHRUB PRODUCTION =  645.38   723.47


                                   TOTAL PRODUCTION = 1398.58 1567.80
                                   *********************************
  1202.   CUMBER 3          4  AUGUST 1980      OUT SPRAY

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./     LBS     KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT      PER     PER
                  CENT    PLOT    GMS/20   /PLOT   COVER     ACRE    HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
*****************************************************************************
   6  SHRUBS
        ANDI         .83      7.
        ARTR        6.43      7.
        CHVI        4.33     10.
        ERMI         .63      4.
        PHHO         .54      4.
        TECA        1.58      2.
   3  PER GRASS
        AGSM        1.86     16.   34.17     1.71     .92 164.07   183.92
        AGSP        1.54     10.   22.28     1.11     .72 106.98   119.92
        POSE        1.77     12.    3.82      .19     .11  18.34    20.56
        STCO         .66      6.    4.86      .24     .37  23.33    26.15
                  TOTAL PERENNIAL GRASS PRODUCTION = 312.72   350.56
   2  PER FORBS
        AGGL         .08      6.
        ARHO2        .02      1.
        ASDI         .01      1.
        ASMI         .01      1.
        CORA         .01      1.
        CYMO         .03      4.
        PHLO         .39     16.
        TRGY         .64     16.
             PERENNIAL FORBS =  10.64      .53      .45  51.08    57.26
   4  ANN FORBS
        CHLE         .03      4.
        LARE         .02      3.
                ANNUAL FORBS =    .55      .03      .61   2.64     2.96

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 366.44   410.78


    PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                       AND WOODY MAT FORM PLANTS
   *******************               ****************************
   OCT.15 TO APR.15 =  9.87           ARTR            216.94  243.19
   APR.15 TO JULY 1 =  1.85           CHVI            223.20  250.21
   JULY 1 TO SEPT.1 =  1.10           ERMI             10.79   12.09
   SEPT.1 TO OCT.15 =  2.40           PHHO              1.02    1.15
   SEASON TOTAL     = 15.32           TECA              4.16    4.66
   LONG TERM AVERAGE= 11.07

                         TOTAL SHRUB PRODUCTION =  456.11   511.30


                              TOTAL PRODUCTION =  822.55   922.08
                              ********************************
  1902.   CLMBER 4          3  AUGUST 1980        IN NATIVE

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
 PLANT    PLANT     AVE.     1X1      TOTAL     AVE.     WGT./     LBS      KGS
 CODE     NAME      PER-     ABS.     WGT.      WGT.     UNIT      PER      PER
                    CENT     PLOT     GMS/20    /PLOT    COVER     ACRE     HA.
                    COVER    FREC.    SQ.FT.    OCCUR-   AREA
                    AREA     BASE               RENCES
                             20
**********************************************************************************
     6  SHRUBS
          ARLO        2.25      1.
          ARSP         .23      1.
          ATGA        2.28      4.   19.56      .98      .43   93.92   105.28
          PHHO         .40      6.
          TESP         .18      2.
     3  PER GRASS
          AGSM        1.82     20.   41.56     2.08     1.14  199.55   223.70
          POSE         .45      6.    1.44      .07      .16    6.91     7.75
          SIHY         .15      5.    1.55      .08      .52    7.44     8.34
                    TOTAL PERENNIAL GRASS PRODUCTION = 213.90  239.78
     2  PER FORBS
          AST          .03      2.
          TRGY         .02      2.
                PERENNIAL FORBS =      .22      .01      .24    1.05     1.18
     4  ANN FORBS
          LARE         .35     16.
          MONU         .04      5.
          POAV         .01      1.
          SILI         .02      1.
                   ANNUAL FORBS =    3.05      .15      .37   14.64    16.41

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 323.51  362.65


      PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                       AND WOODY MAT FORM PLANTS
     *******************              ******************************
      OCT.15 TO APR.15 =   3.99         ARTR                  8.41     9.43
      APR.15 TO JULY 1 =   2.38         CELA                   .17      .19
      JULY 1 TO SEPT.1 =    .99         CHVI                  5.90     6.62
      SEPT.1 TO OCT.15 =   1.65         PHHO                  6.30     7.06
      SEASON TOTAL     =   9.01         TESP                  1.88     2.11
      LONG TERM AVERAGE=   8.24

                          TOTAL SHRUB PRODUCTION =    22.67    25.41


                               TOTAL PRODUCTION =  346.18   388.06
                               **********************************
```

```
   1902.  CUMBER 4      3 AUGUST 1980   OUT NATIVE

                    NUMBER OF PLOTS = 20
                      PLOT SIZE 1X1
 PLANT  PLANT  AVE.   1X1  TOTAL   AVE.  WGT./  LBS   KGS
 CODE   NAME   PER-   ABS. WGT.    WGT.  UNIT   PER   PER
               CENT   PLOT GMS/20  /PLOT COVER  ACRE  HA.
               COVER  FREQ. SQ.FT. OCCUR- AREA
               AREA   BASE         RENCES
                      20
****************************************************************
    6  SHRUBS
        ARSP      .74   7.
        ATGA    12.79  13. 118.43  5.92   .46 568.66  637.47
        CELA      .11   2.
        PHHO      .01   1.
    3  PER GRASS
        AGSM      .33   5.   8.67   .43  1.33  41.63   46.67
        POSE      .06   1.    .71   .04   .59   3.40    3.81
        SIHY     1.34  20.  13.12   .66   .49  62.99   70.61
               TOTAL PERENNIAL GRASS PRODUCTION = 108.02  121.09
    4  ANN FORBS
        LARE      .65  19.
        MONU      .01   2.
        SILI      .01   1.
              ANNUAL FORBS = 9.86   .49   .73  47.34   53.07

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 724.02  811.63


      PRECIPITATION DATA          PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                  AND WOODY MAT FORM PLANTS
     ********************         ***************************
     OCT.15 TO APR.15 =  3.99     ARSP         42.45   47.59
     APR.15 TO JULY 1 =  2.38     CELA         17.42   19.53
     JULY 1 TO SEPT.1 =   .99     TESP         18.02   20.20
     SEPT.1 TO OCT.15 =  1.65
     SEASON TOTAL     =  9.01
     LONG TERM AVERAGE=  8.24

                       TOTAL SHRUB PRODUCTION =  77.89   87.31


                            TOTAL PRODUCTION =  801.91  898.94
                            ******************************
```

```
  2004.   DEMER           18   JULY 1980     IN NATIVE

                     NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
******************************************************************************
   6  SHRUBS
        ARTR     13.74     13.
        OPPO       .63      2.
   3  PER GRASS
        AGSM       .56     10.    5.87      .29      .52   28.18    31.59
        BOGR       .79      7.    1.28      .06      .08    6.14     6.88
        POSE       .65     15.    2.18      .11      .17   10.46    11.73
        SPCR       .03      1.     .32      .02      .64    1.53     1.72
                 TOTAL PERENNIAL GRASS PRODUCTION =        46.31    51.91
   5  ANN GRASS
        BRTE       .01      1.
              ANNUAL GRASSES =     .01      .00      .10     .04      .04
   4  ANN FORBS
        LARE       .01      1.
        LEDE       .01      1.
        PLPA       .01      2.
                 ANNUAL FORBS =    .02      .00      .05     .09      .10

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =           46.44    52.06


   PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  **********************             ******************************
   OCT.15 TO APR.15 =     3.75         ARTR             153.90  172.52
   APR.15 TO JULY 1 =     1.75         OPPO              23.83   26.71
   JULY 1 TO SEPT.1 =     1.85
   SEPT.1 TO OCT.15 =      .95
   SEASON TOTAL     =     8.30
   LONG TERM AVERAGE=     8.47

                        TOTAL SHRUB PRODUCTION =  177.73  199.23


                              TOTAL PRODUCTION =  224.17  251.29
                              *********************************
  2004.   DEMER           18    JULY 1960      CUT NATIVE

                       NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT     AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME      PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                    CENT   PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                    COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                    AREA   BASE            RENCES
                           20
******************************************************************************
   6  SHRUBS
        ARTR       6.33     18.
        OPPO       1.02      3.
   3  PER GRASS
        AGSM       1.25     14.  12.81     .64      .51   61.50    68.94
        BOGR       1.79     10.   3.39     .17      .09   16.27    18.24
        POSE       1.01     18.   3.75     .19      .19   18.00    20.18
        SIHY        .11      3.    .72     .04      .33    3.45     3.87
                   TOTAL PERENNIAL GRASS PRODUCTION =     99.22   111.23
   5  ANN GRASS
        BRTE        .05      2.
        VUOC        .09      7.
                ANNUAL GRASSES =   .12     .01      .05     .57      .64
   2  PER FORBS
        SPCO        .03      3.
              PERENNIAL FORBS =    .22     .01      .44    1.05     1.18
   4  ANN FORBS
        DEPI        .02      3.
        LARE        .01      1.
        LEDE        .01      2.
        PLPA        .62     12.
                  ANNUAL FORBS =   .73     .04      .06    3.50     3.92

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 104.34   116.97


    PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                         AND WOODY MAT FORM PLANTS
   *********************               ******************************
   OCT.15 TO APR.15 =  3.75             ARTR             185.82  208.31
   APR.15 TO JULY 1 =  1.75             OPPO              42.22   47.33
   JULY 1 TO SEPT.1 =  1.85
   SEPT.1 TO OCT.15 =   .95
   SEASON TOTAL     =  8.30
   LONG TERM AVERAGE=  8.47

                            TOTAL SHRUB PRODUCTION =  228.04  255.63


                                  TOTAL PRODUCTION =  332.38  372.60
                                  *********************************
  2005.    DUTCH NICK     7    JULY 1980       IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT  PLANT     AVE.  1X1     TOTAL   AVE.   WGT./   LBS   KGS
 CODE   NAME      PER-  ABS.    WGT.    WGT.   UNIT    PER   PER
                  CENT  PLOT    GMS/20  /PLOT  COVER   ACRE  HA.
                  COVER FREQ.   SQ.FT.  OCCUR- AREA
                  AREA  BASE            RENCES
                        20
***********************************************************************
    6  SHRUBS
         OPPO      2.06     9.
    3  PER GRASS
         BOGR     13.61    20.  49.03   2.45     .16 235.42  263.91
                  TOTAL PERENNIAL GRASS PRODUCTION = 235.42  263.91
    4  ANN FORBS
         LATE       .03     1.
         LEDE       .01     1.
                ANNUAL FORBS =     .69    .03    1.15   3.31    3.71

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 236.73  267.62


      PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    ********************             ******************************
     OCT.15 TO APR.15 =   1.23         OPPO           70.82   79.38
     APR.15 TO JULY 1 =   4.17
     JULY 1 TO SEPT.1 =   1.63
     SEPT.1 TO OCT.15 =   1.20
     SEASON TOTAL     =   8.22
     LONG TERM AVERAGE=   7.12

                         TOTAL SHRUB PRODUCTION =     70.82   79.38


                              TOTAL PRODUCTION =  309.55  347.00
                              ******************************
  2005.    DUTCH NICK      6     JULY 1980      CUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS    KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER    PER
                 CENT   PLOT   GMS/20  /PLOT   COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.  OCCUR-  AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR      .03      1.
         OPPO     3.26     12.
    3  PER GRASS
         BOGR    10.48     20.  42.57   2.13     .20 204.40  229.13
         POSE      .06      1.    .16    .01     .13    .76     .85
         SPCR      .04      1.    .14    .01     .20    .67     .75
                 TOTAL PERENNIAL GRASS PRODUCTION = 205.83  230.74
    4  ANN FORBS
         CHLE      .09      6.
         LEDE      .03      2.
         PLPA      .01      1.
         UNK       .01      1.
                ANNUAL FORBS =   3.30    .17    1.27  15.84   17.76

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 221.67  248.49


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   ********************               ******************************
    OCT.15 TO APR.15 =     1.23         ARTR              2.86    3.20
    APR.15 TO JULY 1 =     4.17         CELA              3.29    3.69
    JULY 1 TO SEPT.1 =     1.63         OPPO             46.41   52.03
    SEPT.1 TO OCT.15 =     1.20
    SEASON TOTAL     =     8.22
    LONG TERM AVERAGE=     7.12

                         TOTAL SHRUB PRODUCTION =   52.56   58.92


                              TOTAL PRODUCTION =  274.23  307.42
                              **********************************
 404.   FARSON          13  AUGUST 1980       IN NATIVE

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
PLANT   PLANT   AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE    NAME    PER-    ARS.    WGT.     WGT.     UNIT     PER    PER
                CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                AREA    BASE             RENCES
                        20
*****************************************************************************
   6  SHRUBS
        ARTR     17.46    14.
        CHVI       .75     7.
        EROV       .02     1.
        PHHO      2.19    13.
   3  PER GRASS
        AGSM       .72    15.    6.08      .30     .42   29.19    32.72
        CAEL       .09     4.     .16      .01     .09     .76      .85
        ORHY       .47    12.    3.43      .17     .36   16.46    18.45
        POSE       .11     2.     .21      .01     .10    1.00     1.12
        SIHY       .16     4.     .59      .03     .19    2.83     3.17
        STCO       .06     1.    1.20      .06     .80    5.76     6.46
              TOTAL PERENNIAL GRASS PRODUCTION =          56.00    62.78
   2  PER FORBS
        ALTE       .01     1.
           PERENNIAL FORBS =      .02      .00     .20     .09      .10
   4  ANN FORBS
        CHLE       .19    19.
        EFCE       .13     8.
        UNK        .04     6.
                ANNUAL FORBS =   1.08      .05     .15    5.18     5.81

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         61.27    68.68


    PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                       AND WOODY MAT FORM PLANTS
  ********************               *****************************
   OCT.15 TO APR.15 =  3.58            ARTR             162.03  181.63
   APR.15 TO JULY 1 =  2.94            ATCO               2.99    3.35
   JULY 1 TO SEPT.1 = E1.00            CELA               2.74    3.07
   SEPT.1 TO OCT.15 =   .98            CHVI               4.86    5.45
   SEASON TOTAL     = E8.50            EROV                .28     .32
   LONG TERM AVERAGE=  6.60            OPPO                .31     .34
                                       PHHO              61.65   69.11

                          TOTAL SHRUB PRODUCTION =  234.85  263.27


                              TOTAL PRODUCTION =  296.12  331.95
                              ********************************
   404.   FARSON          13  AUGUST 1980      OUT NATIVE

                       NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL     AVE.     WGT./    LBS     KGS
CODE     NAME     PER-    ABS.    WGT.      WGT.     UNIT     PER     PER
                  CENT    PLOT    GMS/20    /PLOT    COVER    ACRE    HA.
                  COVER   FREQ.   SQ.FT.    OCCUR-   AREA
                  AREA    BASE              RENCES
                          20
******************************************************************************
   6  SHRUBS
        ARHO        .29       1.
        ARTR       9.42      14.
        CHVI       1.29      10.
        OPPO        .03       1.
        PHHO       1.11      13.
   3  PER GRASS
        AGSM       1.14      20.   10.83     .54      .48   52.00    58.29
        CAEL        .15       5.     .59     .03      .20    2.83     3.17
        KOCR        .14       1.     .70     .04      .26    3.36     3.77
        ORHY        .26       5.    3.93     .20      .76   18.87    21.15
        SIHY        .08       1.     .70     .04      .47    3.36     3.77
        STCO        .29       4.    0.00    0.00     0.00    0.00     0.00
                  TOTAL PERENNIAL GRASS PRODUCTION =         80.42    90.15
   2  PER FORBS
        ASPU        .21       5.
              PERENNIAL FORBS =     3.02     .15      .74   14.50    16.25
   4  ANN FORBS
        CHLE        .65      20.
        ERCE        .13      14.
        SILI        .05       2.
                 ANNUAL FORBS =     2.24     .11      .14   10.75    12.05

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  105.67   118.46


    PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                         AND WOODY MAT FORM PLANTS
   ********************                *****************************
    OCT.15 TO APR.15 =    3.58           ARTR               159.71   179.03
    APR.15 TO JULY 1 =    2.94           CELA                 2.65     2.97
    JULY 1 TO SEPT.1 =   E1.00           CHVI                17.43    19.54
    SEPT.1 TO OCT.15 =     .98           EROV                 2.37     2.65
    SEASON TOTAL     =   E8.50           GRSP                 8.61     9.65
    LONG TERM AVERAGE=    6.60           OPPO                  .65      .73
                                         PHHO                21.64    24.26

                            TOTAL SHRUB PRODUCTION =  213.05   238.83


                                  TOTAL PRODUCTION =  318.72   357.29
                                  ******************************
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  1007.   GRANITE MT     31     JULY 1980       IN NATIVE

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
 PLANT   PLANT   AVE.    1X1    TOTAL    AVE.    WGT./   LBS    KGS
 CODE    NAME    PER-    ABS.   WGT.     WGT.    UNIT    PER    PER
                 CENT    PLOT   GMS/20   /PLOT   COVER   ACRE   HA.
                 COVER   FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA    BASE            RENCES
                         20
*************************************************************************
   6  SHRUBS
        ARTR      14.97    18.
        PHHO        .78     9.
   3  PER GRASS
        AGSM       1.04    19.  19.53     .98     .94   93.77   105.12
        POFE       5.18    18.  24.76    1.24     .24  118.88   133.26
        POSE        .41     7.   1.98     .10     .24    9.50    10.65
        SIHY        .04     1.    .19     .01     .24     .91     1.02
                 TOTAL PERENNIAL GRASS PRODUCTION = 223.06   250.05
   2  PER FORBS
        ALTE        .01     1.
        ARHO2       .02     1.
        ASMI        .65    10.
        CORA        .01     1.
        CRAC        .08     5.
        LIRU        .01     1.
        TRGY        .40    13.
             PERENNIAL FORBS =   8.53     .43     .37   40.95    45.90

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 264.01   295.96


    PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                      AND WOODY MAT FORM PLANTS
   *********************            ****************************
    OCT.15 TO APR.15 =  S3.00        ARTR           168.54   188.93
    APR.15 TO JULY 1 =  S3.08        CHVI              .80      .90
    JULY 1 TO SEPT.1 =    .52        PHHO            10.98    12.31
    SEPT.1 TO OCT.15 =   1.00
    SEASON TOTAL     =   7.60
    LONG TERM AVERAGE=   8.66

                          TOTAL SHRUB PRODUCTION =  180.33   202.15


                              TOTAL PRODUCTION =  444.34   498.10
                              *******************************
  1007.   GRANITE MT     31     JULY 1980      OUT NATIVE

                        NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           20
**********************************************************************
   6  SHRUBS
        ANDI         .27      3.
        ARTR       14.71     15.
        PHHO        2.05     14.
   3  PER GRASS
        AGSM        1.21     20.   18.40      .92       .76   88.35    99.04
        POFE        3.87     17.   15.66      .78       .20   75.19    84.29
        POSE        1.25     12.    4.26      .21       .17   20.45    22.92
                   TOTAL PERENNIAL GRASS PRODUCTION = 183.99   206.25
   2  PER FORBS
        ALTE         .01      1.
        ARHO2        .01      1.
        ASMI         .38      7.
        CRAC         .03      2.
        CORA         .01      1.
        ERPU         .16      6.
        TRGY         .33     13.
              PERENNIAL FORBS =   8.12      .41       .45   38.98    43.70

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 222.97   249.95


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    ********************               ****************************
     OCT.15 TO APR.15 =    S3.00         ARTR              305.50   342.47
     APR.15 TO JULY 1 =    S3.08         CHVI                 .65      .73
     JULY 1 TO SEPT.1 =      .52         PHHO               49.15    55.10
     SEPT.1 TO OCT.15 =     1.00
     SEASON TOTAL     =     7.60
     LONG TERM AVERAGE=     8.66

                           TOTAL SHRUB PRODUCTION =  355.31   398.30


                                 TOTAL PRODUCTION =  578.28   648.25
                                 ******************************
   1007.    GRANITE MT     31     JULY 1980      IN SPRAY

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           20
*****************************************************************************
    6   SHRUBS
          ARTR        8.70      5.
          CHV1        3.00      1.
    3   PER GRASS
          AGSM        1.73     19.   34.34     1.72     1.00 164.89   184.84
          POFE        6.32     16.   48.73     2.44      .39 233.98   262.29
          POSE         .27      5.    1.09      .05      .20   5.23     5.86
                  TOTAL PERENNIAL GRASS PRODUCTION = 404.10   453.00
    2   PER FORBS
          ARHO2        .03      3.
          ASMI         .04      1.
          CPAC         .25      9.
          ERPU         .04      2.
          TRGY         .06      5.
          UNK          .01      1.
              PERENNIAL FORBS =    2.53      .13      .31   12.14    13.61

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 416.24   466.61


     PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                           AND WOODY MAT FORM PLANTS
    ********************                  ******************************
     OCT.15 TO APR.15 =    S3.00           ARTR             166.64   186.81
     APR.15 TO JULY 1 =    S3.08           PHHO               1.38     1.54
     JULY 1 TO SEPT.1 =      .52
     SEPT.1 TO OCT.15 =     1.00
     SEASON TOTAL     =     7.60
     LONG TERM AVERAGE=     8.66

                          TOTAL SHRUB PRODUCTION =  168.02   186.35


                               TOTAL PRODUCTION =  584.26   654.95
                               ********************************
 1007.   GRANITE MT    31    JULY 1980      CUT SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL   AVE.   WGT./   LBS    KGS
CODE    NAME     PER-   ABS.   WGT.    WGT.   UNIT    PER    PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
*************************************************************
   6  SHRUBS
        ANDI       .05     1.
        ARTR     18.68    15.
        CHVI       .35     2.
        PHHO      2.17    13.
   3  PER GRASS
        AGSM      1.99    20.   22.78   1.14    .57 109.38  122.61
        POFE      2.66    16.    9.43    .47    .18  45.27   50.75
        POSE      1.66    15.    4.91    .25    .15  23.57   26.42
        SIHY       .03     1.     .66    .03   1.32   3.16    3.54
        STCO       .13     1.     .66    .03    .26   3.16    3.54
                 TOTAL PERENNIAL GRASS PRODUCTION = 184.54  206.87
   2  PER FORBS
        ARHO2      .02     2.
        ASMI       .11     5.
        CORA       .05     3.
        CRAC       .01     1.
        ERPU       .06     3.
        LEAL       .03     2.
        LOOR       .06     6.
        TRGY       .13    10.
             PERENNIAL FORBS =   4.36    .22    .48  20.93   23.46

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 205.47  230.33


   PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                     AND WOODY MAT FORM PLANTS
  *********************           ****************************
  OCT.15 TO APR.15 =  S3.00         ARTR              392.35  439.82
  APR.15 TO JULY 1 =  S3.08         CHVI               10.49   11.76
  JULY 1 TO SEPT.1 =    .52         PHHO               14.81   16.60
  SEPT.1 TO OCT.15 =   1.00
  SEASON TOTAL     =   7.60
  LONG TERM AVERAGE=   8.66

                    TOTAL SHRUB PRODUCTION =  417.65  468.19


                          TOTAL PRODUCTION =  623.12  698.52
                          *********************************
   901.    HAL EXC 1       3    JULY 1980      IN NATIVE

                        NUMBER OF PLOTS = 20
                            PLOT SIZE 1X10
PLANT   PLANT     AVE.   1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE    NAME      PER-   ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT   PLOT    GMS/20   /PLOT   COVER   ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         20
***********************************************************************
   6  SHRUBS
        ARSP       .02     5.
        ARTR      1.54    14.
        ATGA      9.69    19.   64.14    3.21     .03 308.00   345.27
        OPPO       .03     4.
        TESP       .01     2.
   3  PER GRASS
        ORHY       .00     1.     .01     .00     .01    .02      .02
        POSE       .14     3.     .30     .02     .01   1.45     1.63
        SIHY      1.69    18.   19.23     .96     .06  92.31   103.48
                  TOTAL PERENNIAL GRASS PRODUCTION =   93.78   105.13
   2  PER FORBS
        ALTE       .00     1.
        MACA       .00     1.
        MUDI       .00     1.
        SILI       .00     3.
               PERENNIAL FORBS =   .04     .00     .03     .19      .21
   4  ANN FORBS
        EUSE       .01     4.
        GIPU       .00     4.
        LARE       .00     2.
        LEDE       .00     2.
                  ANNUAL FORBS =   .06     .00     .02     .37      .41

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 402.34  451.02


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   ********************               ******************************
    OCT.15 TO APR.15 =  1.35            ARTR              40.62   45.53
    APR.15 TO JULY 1 =  3.54            OPPO               4.33    4.85
    JULY 1 TO SEPT.1 =  1.15            TESP               3.00    3.36
    SEPT.1 TO OCT.15 =  1.32
    SEASON TOTAL     =  7.36
    LONG TERM AVERAGE=  5.44


                         TOTAL SHRUB PRODUCTION =   47.94   53.75


                             TOTAL PRODUCTION =  450.28  504.77
                             **********************************
   905.  HAL EXC 2      5    JULY 1980      IN NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X10
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.  WGT./     LBS   KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.  UNIT      PER   PER
                CENT   PLOT   GMS/20  /PLOT COVER     ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR-AREA
                AREA   BASE           RENCES
                       20
***********************************************************************
   6  SHRUBS
        ARSP        .10     7.
        ATGA       4.33   20.    53.47   2.67    .06 256.74  287.81
        OPPO        .02     2.
   3  PER GRASS
        POSE       1.58   19.     8.68    .43    .03  41.70   46.75
        SIHY       3.00   20.    44.54   2.23    .07 213.87  239.75
                TOTAL PERENNIAL GRASS PRODUCTION = 255.57  286.49
   4  ANN FORBS
        DEPI        .00     1.
        EUSE        .00     5.
        LARE        .02    12.
        LEDE        .02    13.
        SILI        .02     8.
               ANNUAL FORBS =      .56    .03    .05   2.69    3.02

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 515.00  577.32


    PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  ***********************              ******************************
    OCT.15 TO APR.15 = 1.43              OPPO                3.67    4.11
    APR.15 TO JULY 1 = 3.71
    JULY 1 TO SEPT.1 = 1.18
    SEPT.1 TO OCT.15 = 1.41
    SEASON TOTAL     = 7.73
    LONG TERM AVERAGE= 5.97

                         TOTAL SHRUB PRODUCTION =    3.67    4.11


                               TOTAL PRODUCTION =  518.67  581.42
                               ***********************************
    903.   HAL EXC 3      5    JULY 1980      IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X10
 PLANT  PLANT    AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE   NAME     PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARSP      .69   13.
         ATGA    10.62   20.  71.52   3.58    .03 343.39  384.94
         OPPO      .40    7.
    3  PER GRASS
         SIHY     1.85   20.  62.93   3.15    .17 302.18  338.74
                 TOTAL PERENNIAL GRASS PRODUCTION = 302.18  338.74
    2  PER FORBS
         ALTE      .00    2.
         MACA      .00    2.
         MUDI      .00    1.
         POTR      .00    1.
             PERENNIAL FORBS =    .04    .00    .03    .17     .19
    4  ANN FORBS
         EUSE      .02   13.
         GIPU      .00    1.
         LARE      .02    6.
         LEDE      .00    5.
         SILI      .01    6.
                ANNUAL FORBS =    .66    .03    .06   3.15    3.53

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 648.89  727.41


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    ********************            ******************************
     OCT.15 TO APR.15 = 1.95          OPPO           15.33   17.19
     APR.15 TO JULY 1 = 3.22
     JULY 1 TO SEPT.1 = 1.03
     SEPT.1 TO OCT.15 = 1.24
     SEASON TOTAL     = 7.44
     LONG TERM AVERAGE= 5.56

                          TOTAL SHRUB PRODUCTION =   15.33   17.19


                                TOTAL PRODUCTION =  664.22  744.59
                               ***********************************
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Horse Creek Exclosure

Because of extremely excessive utiliaztion by cattle during June, both outside the exclosure and inside as well, as a result of a breached fence, no estimates of herbage production were possible during 1980.

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   914.   KANE DEER      22     JULY 1980       IN NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT   PLOT    GMS/20   /PLOT   COVER   ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         20
*************************************************************
   6  SHRUBS
        APNO       2.39      5.
        EROV        .01      1.
        JUOS       4.45      3.
        PHHO        .15      3.
        PASE        .16      4.
        XASA        .04      2.
   3  PER GRASS
        AGSP        .60      8.  13.67     .68    1.15   65.63    73.57
        POSE        .02      1.    .07     .00     .05     .09      .10
        STCO        .07      1.   1.06     .05     .76    5.08     5.69
                 TOTAL PERENNIAL GRASS PRODUCTION =      70.80    79.37
   2  PER FORBS
        ERCA        .07      4.
        GISP        .04      2.
        PELA        .02      1.
        SECA        .04      1.
              PERENNIAL FORBS =   1.47     .07     .49    7.05     7.90

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =     77.85    87.27


     PRECIPITATION DATA
     RAIN GAUGE
  ******************
     OCT.15 TO APR.15 =    3.73
     APR.15 TO JULY 1 =    2.98
     JULY 1 TO SEPT.1 =    1.49
     SEPT.1 TO OCT.15 =    1.10
     SEASON TOTAL     =    9.30
     LONG TERM AVERAGE=   11.79
   914.   KANE DEER      22    JUNE 1980     CUT NATIVE

                        NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
*****************************************************************************
   6  SHRUBS
        ARTR       1.35      1.
        EROV        .04      1.
        JUOS      29.45     11.
        PHHO        .21      6.
        XASA        .04      3.
   3  PER GRASS
        AGSP        .31      7.    3.19      .16      .52   15.31    17.16
        POSE        .06      1.     .13      .01      .11     .62      .70
                   TOTAL PERENNIAL GRASS PRODUCTION =       15.93    17.86
   2  PER FORBS
        CRFL        .02      1.
        GICO        .02      1.
               PERENNIAL FORBS =    .21      .01      .26    1.00     1.12
   4  ANN FORBS
        CRY         .01      1.
                  ANNUAL FORBS =    .04      .00      .40     .19      .21

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =       17.12    19.19


    PRECIPITATION DATA
    RAIN GAUGE
  ********************
    OCT.15 TO APR.15 =  3.73
    APR.15 TO JULY 1 =  2.98
    JULY 1 TO SEPT.1 =  1.49
    SEPT.1 TO OCT.15 =  1.10
    SEASON TOTAL     =  9.30
    LONG TERM AVERAGE= 11.79
 914.   KANE DEER      22    JULY 1980       IN SPRAY

                    NUMBER OF PLOTS = 20
                      PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS     KGS
CODE     NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER     PER
                  CENT   PLOT   GMS/20   /PLOT   COVER    ACRE    HA.
                  COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                  AREA   BASE            RENCES
                         20
**********************************************************************
   6  SHRUBS
        ARNO         .02     2.
        PASE         .02     1.
        PHHO         .04     1.
        XASA        4.71    14.
   3  PER GRASS
        AGSP         .84    13.   27.79    1.39     1.65 133.43   149.58
        ARFE         .05     1.     .31     .02      .34   1.48     1.66
        POSE         .11     3.     .26     .01      .12   1.24     1.39
        SIHY         .05     1.     .81     .04      .90   3.88     4.35
        STCO         .25     3.    2.16     .11      .43  10.37    11.62
                 TOTAL PERENNIAL GRASS PRODUCTION = 150.40   168.60
   5  ANN GRASS
        BRTE         .23     7.
              ANNUAL GRASSES =    1.50     .08      .33   7.20     8.07
   2  PER FORBS
        ERCA         .16     2.
        GICO         .36     9.
        SECA        3.27    16.
        TRDU         .02     1.
                PERENNIAL FORBS = 28.16   1.41      .37 135.21   151.57
   4  ANN FORBS
        DEPI         .01     2.
        LARE         .01     1.
        UNK          .01     1.
                 ANNUAL FORBS =     .02     .00      .05    .09      .10

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 292.90   328.34


   PRECIPITATION DATA
   RAIN GAUGE
 ********************
   OCT.15 TO APR.15 =   3.73
   APR.15 TO JULY 1 =   2.98
   JULY 1 TO SEPT.1 =   1.49
   SEPT.1 TO OCT.15 =   1.10
   SEASON TOTAL     =   9.30
   LONG TERM AVERAGE=  11.79
   914.   KANE DEER      22     JULY 1980       OUT SPRAY

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
PLANT     PLANT     AVE.    1X1      TOTAL     AVE.    WGT./     LBS     KGS
CODE      NAME      PER-    ABS.     WGT.      WGT.    UNIT      PER     PER
                    CENT    PLOT     GMS/20    /PLOT   COVER     ACRE    HA.
                    COVER   FREQ.    SQ.FT.    OCCUR-  AREA
                    AREA    BASE               RENCES
                            20
*****************************************************************************
   6  SHRUBS
        ARFR          .05      1.
        PASE          .04      1.
        XASA         1.59     12.
   3  PER GRASS
        AGSP         1.03     12.   19.24       .96       .93   92.38   103.56
        KOCR          .11      2.     .51       .03       .24    2.44     2.74
        POSE          .21      6.    1.29       .06       .31    6.19     6.94
        SIHY          .25      3.    8.33       .42      1.70   39.99    44.83
        STCO          .05      1.    1.22       .06      1.22    5.85     6.56
                    TOTAL PERENNIAL GRASS PRODUCTION = 146.85   164.62
   5  ANN GRASS
        BRTE          .25      9.
                ANNUAL GRASSES =      .67       .03       .14    3.21     3.60
   2  PER FORBS
        ARHO2         .01      1.
        ERCA          .42      7.
        GICO          .14      6.
        LAB           .04      2.
        PHAU          .02      1.
        SECA          .34      9.
        TROU          .01      1.
              PERENNIAL FORBS =      9.16       .46       .48   43.98    49.30
   4  ANN FORBS
        DEPI          .03      3.
        LARE          .05      4.
                  ANNUAL FORBS =      .36       .02       .24    1.72     1.93

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 195.76   219.45



   PRECIPITATION DATA
   RAIN GAUGE
 ********************
   OCT.15 TO APR.15 =    3.73
   APR.15 TO JULY 1 =    2.98
   JULY 1 TO SEPT.1 =    1.49
   SEPT.1 TO OCT.15 =    1.10
   SEASON TOTAL     =    9.30
   LONG TERM AVERAGE=   11.79
```

```
    921.   KANE GRI        22    JULY 1980      IN SPRAY

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
 PLANT   PLANT    AVE.    1X1     TOTAL    AVE.    WGT./   LBS     KGS
 CODE    NAME     PER-    ABS.    WGT.     WGT.    UNIT    PER     PER
                  CENT    PLOT    GMS/20   /PLOT   COVER   ACRE    HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
***********************************************************************
    6  SHRUBS
         ARNC       1.37      7.
         JUDS        .44      1.
         XASA        .20      7.
    3  PER GRASS
         AGSP       3.13     19.  77.35    3.67    1.24 371.41  416.35
         POSE        .61     12.   1.35     .07     .11   6.48    7.26
                  TOTAL PERENNIAL GRASS PRODUCTION = 377.89  423.61
    5  ANN GRASS
         BRTE        .01      1.
               ANNUAL GRASSES =     .02     .00     .10    .09     .10
    2  PER FORBS
         GICO        .43      8.
         LEAL        .02      2.
         MACA        .01      1.
         PHAL        .02      1.
         TRDU        .02      2.
              PERENNIAL FORBS =    4.72     .24     .49  22.66   25.40

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 400.64  449.12


     PRECIPITATION DATA
     RAIN GAUGE
   *******************
     OCT.15 TO APR.15 =     3.68
     APR.15 TO JULY 1 =     2.86
     JULY 1 TO SEPT.1 =     1.42
     SEPT.1 TO OCT.15 =     1.08
     SEASON TOTAL     =     9.04
     LONG TERM AVERAGE=    12.29
```

```
      921.   KANE GRI        22    JULY 1980      CUT NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
    PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
    CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                      CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                      COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                      AREA    BASE             RENCES
                              20
   **********************************************************
      6  SHRUBS
          ARHO          .02     1.
          ARNO         9.30     8.
          JUOS        20.60    10.
          PHHO          .12     4.
      3  PER GRASS
          AGSP          .12     4.     .75     .04     .31    3.60     4.04
          POSE          .11     3.     .13     .01     .06     .62      .70
                 TOTAL PERENNIAL GRASS PRODUCTION =           4.22     4.73
      2  PER FORBS
          GICO          .04     4.
          SECA          .04     1.
              PERENNIAL FORBS =        .21     .01     .14    1.00     1.12

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =          5.22     5.85


       PRECIPITATION DATA
       RAIN GAUGE
     *****************
       OCT.15 TO APR.15 =    3.68
       APR.15 TO JULY 1 =    2.86
       JULY 1 TO SEPT.1 =    1.42
       SEPT.1 TO OCT.15 =    1.08
       SEASON TOTAL     =    9.04
       LONG TERM AVERAGE=   12.29
```

```
  1502.   KIRBY CK        19    JULY 1980      IN NATIVE

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
*****************************************************************************
    6  SHRUBS
       SAVE       3.95     10.
    3  PER GRASS
       AGSM        .97     14.  40.52    2.03     2.08 194.56  218.10
       POSE        .17      4.   1.62     .08      .48   7.77    8.71
                 TOTAL PERENNIAL GRASS PRODUCTION = 202.33  226.81
    5  ANN GRASS
       BRTE       1.66     19.
              ANNUAL GRASSES =  24.47    1.22      .73 117.49  131.71
    4  ANN FORBS
       ATAR        .01      1.
       CAMI        .24      7.
       CHDE        .01      1.
       LARE        .08      6.
       LEPE       1.98     20.
                ANNUAL FORBS =  52.31    2.62     1.13 251.17  281.56

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 570.99  640.08


   PRECIPITATION DATA                    PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                            AND WOODY MAT FORM PLANTS
  ********************                   ******************************
   OCT.15 TO APR.15 =     4.05             OPPO             17.16   19.24
   APR.15 TO JULY 1 =     2.70             SAVE             75.72   84.88
   JULY 1 TO SEPT.1 =     2.18
   SEPT.1 TO OCT.15 =      .49
   SEASON TOTAL     =     9.42
   LONG TERM AVERAGE=     9.66

                          TOTAL SHRUB PRODUCTION =   92.88  104.12


                               TOTAL PRODUCTION =  663.87  744.20
                               ***********************************
 1502.   KIRBY CK        19    JULY 1980      OUT NATIVE

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           20
*************************************************************************
   6  SHRUBS
       SAVE        9.64     11.
   3  PER GRASS
       AGSM         .34     10.   16.02      .80     2.39   76.92    86.23
       POSE         .34      6.     .52      .03      .08    2.49     2.79
       SIHY         .01      1.     .02      .00      .20     .09      .10
       SPAI         .12      3.    5.07      .25     2.11   24.34    27.29
                   TOTAL PERENNIAL GRASS PRODUCTION =        103.84   116.40
   5  ANN GRASS
       BRTE        1.14     16.
                ANNUAL GRASSES =  14.67      .73      .65   70.44    78.96
   4  ANN FORBS
       ATAP         .09      8.
       CAMI         .01      1.
       CHDE         .01      1.
       HAGL         .02      2.
       LARE         .66      7.
       LEPE        2.31     18.
                  ANNUAL FORBS =  51.60     2.58      .83  247.76   277.74

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  422.04   473.11


   PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  ********************               ****************************
   OCT.15 TO APR.15 =    4.05          SAVE               63.55    71.24
   APR.15 TO JULY 1 =    2.70
   JULY 1 TO SEPT.1 =    2.18
   SEPT.1 TO OCT.15 =     .49
   SEASON TOTAL     =    9.42
   LONG TERM AVERAGE=    9.66

                        TOTAL SHRUB PRODUCTION =     63.55    71.24


                             TOTAL PRODUCTION =  485.59   544.35
                             ******************************
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1001.   LANDER ANT     14  AUGUST 1980      IN NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL     AVE.    WGT./    LBS    KGS
CODE     NAME      PER-    ABS.    WGT.      WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20    /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.    OCCUR-  AREA
                   AREA    BASE              RENCES
                           20
***************************************************************************
  6  SHRUBS
       ARTR      12.77     14.
       OPPO        .86      2.
       PHHO       1.13     10.
  3  PER GRASS
       AGSM        .31     14.     3.74      .19      .60   17.95    20.12
       BOGR        .21      2.      .40      .02      .10    1.92     2.15
       CAEL        .06      2.      .15      .01      .13     .72      .81
       POSE        .61     11.     1.71      .09      .14    8.21     9.20
       STCO        .97      7.     7.11      .36      .37   34.14    38.27
                 TOTAL PERENNIAL GRASS PRODUCTION =         62.94    70.56
  2  PER FORBS
       ERPU        .03      2.
       SPCO        .05      4.
           PERENNIAL FORBS =        .45      .02      .30    2.16     2.42
  4  ANN FORBS
       PLPA        .01      2.
               ANNUAL FORBS =       .03      .00      .15     .14      .16

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            65.24    73.13


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *********************               *****************************
   OCT.15 TO APR.15 =    2.75           ARTR              145.12  162.68
   APR.15 TO JULY 1 =    2.92           OPPO               17.54   19.67
   JULY 1 TO SEPT.1 =     .73           PHHO                8.76    9.82
   SEPT.1 TO OCT.15 =     .75
   SEASON TOTAL     =    7.15
   LONG TERM AVERAGE=    8.50

                         TOTAL SHRUB PRODUCTION =         171.43  192.17


                               TOTAL PRODUCTION =  236.67  265.31
                               *******************************
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 1001.   LANDER ANT     14  AUGUST 1980      OUT NATIVE

                    NUMBER OF PLOTS = 20
                      PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                 CENT   PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
***********************************************************************
   6  SHRUBS
       ARTR       7.64     11.
       OPPO        .95      6.
       PHHO        .96      5.
   3  PER GRASS
       AGSM        .44     15.    5.01     .25     .57  24.05    26.96
       BOGR        .89      3.    3.15     .16     .18  15.12    16.95
       POSE       1.15     16.    3.06     .15     .13  14.69    16.47
       STCO        .93     10.    5.83     .29     .32  27.99    31.38
                 TOTAL PERENNIAL GRASS PRODUCTION =     81.85    91.75
   2  PER FORBS
       ERPU        .04      1.
       SPCO        .04      3.
            PERENNIAL FORBS =      .73     .04     .46   3.50     3.92
   4  ANN FORBS
       PLPA        .01      2.
               ANNUAL FORBS =      .01     .00     .05    .04      .04

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        85.39    95.72


  PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *******************                ****************************
  OCT.15 TO APR.15 =    2.75           ARTR             143.89  161.30
  APR.15 TO JULY 1 =    2.92           OPPO              25.55   28.64
  JULY 1 TO SEPT.1 =     .73           PHHO              11.22   12.58
  SEPT.1 TO OCT.15 =     .75
  SEASON TOTAL     =    7.15
  LONG TERM AVERAGE=    8.50

                          TOTAL SHRUB PRODUCTION =  180.66   202.52


                               TOTAL PRODUCTION =  266.05   298.24
                               ******************************
  1003.   LOWER GOVT     1  AUGUST 1980      IN NATIVE

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         20
***********************************************************************
   6  SHRUBS
        ARTR     39.50     17.
   3  PER GRASS
        AGSM      1.30     20.  21.89    1.09      .85 105.10   117.82
        POSE       .41     10.   1.68     .08      .21   8.06     9.04
        STCO       .18      3.   2.20     .11      .63  10.56    11.84
                TOTAL PERENNIAL GRASS PRODUCTION = 123.72   136.69
   5  ANN GRASS
        BRTE       .05      6.
              ANNUAL GRASSES =   .65     .03       .72   3.12     3.50
   2  PER FORBS
        ARHO2      .02      1.
        ASDR       .30      2.
        CRAC       .04      4.
        ERPU       .01      1.
             PERENNIAL FORBS = 24.13    1.21      3.35 115.86   129.88
   4  ANN FORBS
        DEPI       .01      2.
        CHDE       .02      3.
        GARE       .04      6.
        GIIN       .44     15.
        PLPA       .01      2.
        UNK        .05      5.
                ANNUAL FORBS =  2.02     .10       .19   9.69    10.86

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 252.39   282.93


    PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                      AND WOODY MAT FORM PLANTS
   *********************            ******************************
    OCT.15 TO APR.15 =  3.96          ARTR            550.15  616.71
    APR.15 TO JULY 1 =  3.42          OPPO             38.80   43.49
    JULY 1 TO SEPT.1 =   .37
    SEPT.1 TO OCT.15 =   .92
    SEASON TOTAL     =  8.67
    LONG TERM AVERAGE= 10.28

                        TOTAL SHRUB PRODUCTION =  588.94  660.20


                             TOTAL PRODUCTION =  841.33  943.13
                             *********************************
  1003.   LOWER GOVT      1  AUGUST 1980      OUT NATIVE

                    NUMBER OF PLOTS = 20
                      PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                 CENT   PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
*******************************************************************
   6  SHRUBS
        ARTR     13.25     15.
        CHVI      2.00      2.
        OPPO       .30      1.
   3  PER GRASS
        AGSM      1.67     20.  12.79     .64     .38  61.41    68.84
        POSE       .72     12.   2.37     .12     .16  11.38    12.76
        STCO       .46      9.   4.78     .24     .52  22.95    25.73
                TOTAL PERENNIAL GRASS PRODUCTION =     95.74   107.32
   5  ANN GRASS
        BRTE       .07      6.
        VUOC       .04      6.
              ANNUAL GRASSES =     .89     .04     .45   4.27     4.79
   2  PER FORBS
        ASGR       .15      1.
        CRAC       .03      4.
        ERPU       .01      1.
        SPCO       .12     10.
            PERENNIAL FORBS =     4.39     .22     .73  21.07    23.62
   4  ANN FORBS
        CHOE       .01      1.
        DEPI       .01      2.
        GARE       .05      7.
        GIIN       .41     17.
        PLPA       .07      7.
               ANNUAL FORBS =     3.11     .16     .29  14.93    16.74

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 136.01   152.47


    PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                      AND WOODY MAT FORM PLANTS
   ********************             ******************************
    OCT.15 TO APR.15 =   3.96         ARTR              382.24  426.49
    APR.15 TO JULY 1 =   3.42         CHVI                6.61    7.41
    JULY 1 TO SEPT.1 =    .37         OPPO               12.92   14.48
    SEPT.1 TO OCT.15 =    .92         PHHO                 .98    1.10
    SEASON TOTAL     =   8.67
    LONG TERM AVERAGE=  10.28

                        TOTAL SHRUB PRODUCTION =  402.75  451.48


                              TOTAL PRODUCTION =  538.76  603.95
                              ******************************
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1003.   LOWER GOVT       1  AUGUST 1980      IN SPRAY

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         20
*********************************************************************
   6  SHRUBS
        ARTR        4.51     2.
   3  PER GRASS
        AGSM        1.52    20.   41.22    2.06     1.36 197.92   221.87
        CALL        1.11     7.   10.25     .51      .46  49.21    55.16
        POSE         .98     9.    5.88     .29      .30  28.23    31.65
        STCO        2.62    18.   65.67    3.28     1.26 315.32   353.47
                 TOTAL PERENNIAL GRASS PRODUCTION = 590.68   662.15
   5  ANN GRASS
        BRTE         .37    16.
              ANNUAL GRASSES =     3.78     .19      .52  18.15    20.35
   2  PER FORBS
        ASCI         .01     1.
        SPCO         .11     4.
             PERENNIAL FORBS =     3.55     .18     1.48  17.04    19.10
   4  ANN FORBS
        CAMI         .02     1.
        CHDE         .04     6.
        GARA         .06     5.
        GIIN         .06     6.
        HEAL         .09     4.
        UNK          .02     2.
               ANNUAL FORBS =      1.18     .06      .22   5.66     6.34

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 631.53   707.95


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    ********************              ****************************
     OCT.15 TO APR.15 =   3.96          ARTR               .80      .89
     APR.15 TO JULY 1 =   3.42
     JULY 1 TO SEPT.1 =    .37
     SEPT.1 TO OCT.15 =    .92
     SEASON TOTAL     =   8.67
     LONG TERM AVERAGE=  10.28

                       TOTAL SHRUB PRODUCTION =         .80      .89


                                TOTAL PRODUCTION =  632.33   708.84
                                **********************************
```

```
 1003.  LOWER GOVT      1  AUGUST 1980      OUT SPRAY

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1     TOTAL    AVE.    WGT./   LBS     KGS
CODE    NAME     PER-   ABS.    WGT.     WGT.    UNIT    PER     PER
                 CENT   PLOT    GMS/20   /PLOT   COVER   ACRE    HA.
                 COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA   BASE             RENCES
                        20
*****************************************************************************
   6  SHRUBS
        ARTR      10.08     19.
        CHVI        .48      4.
        OPPO        .50      1.
   3  PER GRASS
        AGSM       1.43     20.  27.61    1.38     .97 132.57   148.61
        POSE        .28     11.    .72     .04     .13   3.45     3.87
        STCO        .54     11.   6.87     .34     .64  32.98    36.97
                 TOTAL PERENNIAL GRASS PRODUCTION = 169.00   189.45
   5  ANN GRASS
        BRTE        .09      7.
        VUOC        .04      7.
              ANNUAL GRASSES =    .62     .03     .26   2.97     3.33
   2  PER FORBS
        SPCO        .06      2.
             PERENNIAL FORBS =    .70     .04     .58   3.36     3.77
   4  ANN FORBS
        CHDE        .01      1.
        DEPI        .01      1.
        GARA        .06      6.
        GIIN        .50     18.
        LEDE        .03      5.
        PLPA        .09      5.
                ANNUAL FORBS =   3.48     .17     .25  16.70    18.72

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 192.03   215.27


     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    ********************             *****************************
    OCT.15 TO APR.15 = 3.96            ARTR              93.04  104.29
    APR.15 TO JULY 1 = 3.42            CHVI              15.56   17.44
    JULY 1 TO SEPT.1 =  .37            OPPO               5.64    6.33
    SEPT.1 TO OCT.15 =  .92
    SEASON TOTAL     = 8.67
    LONG TERM AVERAGE= 10.28

                        TOTAL SHRUB PRODUCTION =  114.24  128.06


                             TOTAL PRODUCTION =  306.27  343.32
                             ********************************
```

```
1004.   MGRAW FLAT      2  AUGUST 1980      IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./   LBS    KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT    PER    PER
                 CENT   PLOT   GMS/20   /PLOT   COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
*************************************************************************
   6  SHRUBS
        ARTR     16.68    18.
        CHVI       .94     4.
        PHHO      1.60    15.
   3  PER GRASS
        AGSM       .70    20.  11.41     .57     .81  54.78    61.41
        POFE      2.74    15.  15.08     .75     .28  72.40    81.16
        POSE       .04     2.    .06     .00     .08    .29      .31
                 TOTAL PERENNIAL GRASS PRODUCTION = 127.46   142.68
   2  PER FORBS
        ARHO2      .01     1.
        CORA       .53    15.
        CRAC       .09     6.
        LES        .01     1.
        LOOR       .01     1.
        TRGY       .05     5.
        VIAM       .62    20.
        VINU       .01     1.
            PERENNIAL FORBS =  36.17    1.81    1.37 173.67   194.65

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 301.13   337.57


  PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                       AND WOODY MAT FORM PLANTS
**********************             ******************************
 OCT.15 TO APR.15 =   6.79           ARTR            258.51  289.79
 APR.15 TO JULY 1 =  E4.00           PHHO             23.88   26.77
 JULY 1 TO SEPT.1 =    .45
 SEPT.1 TO OCT.15 =    .93
 SEASON TOTAL     = E12.17
 LONG TERM AVERAGE=   9.58

                       TOTAL SHRUB PRODUCTION =  282.39  316.56


                            TOTAL PRODUCTION =  583.52  654.12
                            ********************************
 1004.   MCRAW FLAT       0  AUGUST 1980      OUT NATIVE

                    NUMBER OF PLOTS = 20
                      PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                  CENT   PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                  AREA   BASE            RENCES
                         20
*************************************************************************
   6  SHRUBS
        ARTR      20.50    17.
        CHVI        .54     4.
        PHHO       1.58    13.
        XASA        .08     1.
   3  PER GRASS
        AGSM       1.01    20.  17.48      .87      .87  83.93    94.09
        POFE       3.01    18.  16.65      .83      .28  79.94    89.61
        POSE        .44     5.   1.53      .08      .17   7.34     8.23
                  TOTAL PERENNIAL GRASS PRODUCTION = 171.21   191.93
   2  PER FORBS
        ARHO2       .01     2.
        CORA        .32    17.
        CRAC        .02     3.
        ERPU        .06     2.
        LES         .01     1.
        LOOR        .01     1.
        SPCO        .04     3.
        TRGY        .06     5.
        VIAM        .19     9.
              PERENNIAL FORBS =  17.34     .87    1.25  83.26    93.33

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 254.47   285.26


   PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                       AND WOODY MAT FORM PLANTS
  ********************              ****************************
   OCT.15 TO APR.15 =    6.79        ARTR              219.59  246.16
   APR.15 TO JULY 1 =   E4.00        CHVI                7.42    8.31
   JULY 1 TO SEPT.1 =     .45        LEPU                1.98    2.21
   SEPT.1 TO OCT.15 =     .93        PHHO               80.32   90.04
   SEASON TOTAL     =  E12.17
   LONG TERM AVERAGE=    9.58

                      TOTAL SHRUB PRODUCTION =  309.30  346.72


                            TOTAL PRODUCTION =  563.77  631.98
                            ********************************
 920.   MED LODGE      23    JULY 1980      IN SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./   LBS    KGS
 CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT    PER    PER
                  CENT   PLOT   GMS/20   /PLOT   COVER   ACRE   HA.
                  COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                  AREA   BASE            RENCES
                         20
**************************************************************************
   6  SHRUBS
        ARTR      11.91      8.
        JUOS      10.20      3.
   3  PER GRASS
        AGSP        .28      7.    7.10     .36    1.29   34.09    38.21
        FEID       1.20      9.   17.66     .88     .74   84.79    95.05
        KOCR        .26      3.    1.71     .09     .33    8.21     9.20
        POA         .05      1.     .12     .01     .12     .57      .64
        POSE        .21      6.     .72     .04     .17    3.45     3.87
        STCO        .60      5.    3.92     .20     .33   18.92    21.10
                  TOTAL PERENNIAL GRASS PRODUCTION = 149.93   168.07
   5  ANN GRASS
        BRTE        .04      6.
               ANNUAL GRASSES =     .07     .00     .09     .33      .37
   2  PER FORBS
        ACMI        .08      1.
        GICO        .01      1.
        MACA        .02      1.
        SEST        .11      4.
               PERENNIAL FORBS =   1.77     .09     .41    8.49     9.52
   4  ANN FORBS
        ALAL        .11      6.
        ANSE        .15      7.
        UNK         .01      1.
                 ANNUAL FORBS =     .55     .03     .11    2.64     2.96

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 161.39   180.92


    PRECIPITATION DATA
    RAIN GAUGE
  ********************
    OCT.15 TO APR.15 =     5.70
    APR.15 TO JULY 1 =     5.30
    JULY 1 TO SEPT.1 =     1.73
    SEPT.1 TO OCT.15 =     1.97
    SEASON TOTAL     =    14.70
    LONG TERM AVERAGE=    14.19
  920.   MED LODGE      23    JULY 1980      CUT NATIVE

                     NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT    AVE.    1X1     TOTAL    AVE.    WGT./   LBS    KGS
 CODE    NAME     PER-    ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER   ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
****************************************************************************
   6  SHRUBS
       ANDI        .04      2.
       ARTR       3.70      3.
       JUOS      20.05      9.
       JUSC       5.00      1.
       OPPO        .13      1.
       XASA        .10      1.
   3  PER GRASS
       AGSP        .02      2.      .12      .01      .40      .57      .64
       FEID        .54      7.     3.84      .19      .36    18.43    20.66
       KOCR        .14      3.     1.11      .06      .41     5.32     5.96
       POSE        .35      9.      .72      .04      .10     3.45     3.87
       STCO        .12      3.     1.21      .06      .50     5.81     6.51
                  TOTAL PERENNIAL GRASS PRODUCTION =         33.58    37.64
   5  ANN GRASS
       BRTE        .03      2.
              ANNUAL GRASSES =      .03      .00      .06      .14      .16
   2  PER FORBS
       SEST        .15      7.
       UNK         .01      2.
             PERENNIAL FORBS =     2.25      .11      .73    10.80    12.11
   4  ANN FORBS
       ALAL        .08      7.
       LISE        .11      6.
                ANNUAL FORBS =      .26      .01      .07     1.24     1.39

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =           45.76    51.30


    PRECIPITATION DATA
    RAIN GAUGE
  ********************
    OCT.15 TO APR.15 =   5.70
    APR.15 TO JULY 1 =   5.30
    JULY 1 TO SEPT.1 =   1.73
    SEPT.1 TO OCT.15 =   1.97
    SEASON TOTAL     =  14.70
    LONG TERM AVERAGE=  14.19
  2301.   MESA ANTEL    12  AUGUST 1980      IN NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./  LBS    KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT   PER    PER
                CENT   PLOT   GMS/20  /PLOT  COVER  ACRE   HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
**********************************************************************
   6  SHRUBS
        ARTR    12.18    13.
        CHVI     1.52     8.
        PHHO      .96     5.
   3  PER GRASS
        AGSM     1.23    19.   9.77    .49    .40  46.91   52.59
        CAEL      .08     5.    .23    .01    .14   1.10    1.23
        POFE      .03     1.   1.30    .07   2.24   6.24    7.00
        POSE      .43     8.    .91    .05    .11   4.36    4.89
        SIHY      .13     1.   1.10    .06    .42   5.28    5.92
               TOTAL PERENNIAL GRASS PRODUCTION =  63.89   71.62
   4  ANN FORBS
        CHLE      .20    13.
        DEPI      .01     1.
        ERCE      .04     5.
        GIPU      .19    13.
        LARE      .01     1.
               ANNUAL FORBS =  3.18    .16    .37  15.26   17.11

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  79.15   88.73


     PRECIPITATION DATA           PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                   AND WOODY MAT FORM PLANTS
   *********************          *******************************
    OCT.15 TO APR.15 =  2.80        ARTR          238.29  267.12
    APR.15 TO JULY 1 =  3.20        CHVI            4.39    4.93
    JULY 1 TO SEPT.1 =  1.12        EROV             .32     .36
    SEPT.1 TO OCT.15 =  1.10        PHHO            7.64    8.56
    SEASON TOTAL     =  8.22
    LONG TERM AVERAGE=  7.59

                        TOTAL SHRUB PRODUCTION =  250.64  280.97


                              TOTAL PRODUCTION =  329.79  369.69
                              ***********************************
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 2301.   MESA ANTEL    12  AUGUST 1980      CUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS     KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER     PER
                 CENT   PLOT   GMS/20   /PLOT   COVER    ACRE    HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
****************************************************************************
  6  SHRUBS
       ARTR     23.41     18.
       CHVI       .45      6.
       EROV       .22      2.
       PHHO      1.61     14.
  3  PER GRASS
       AGSM      1.61     19.   12.96     .65      .40   62.22     69.75
       CAEL       .27      4.    1.34     .07      .25    6.43      7.21
       ORHY       .04      1.     .17     .01      .21     .81       .91
       POSE       .38      7.     .76     .04      .10    3.64      4.08
       SIHY       .04      2.     .47     .02      .59    2.25      2.52
              TOTAL PERENNIAL GRASS PRODUCTION =          75.35     84.47
  2  PER FORBS
       ERPU       .01      2.
          PERENNIAL FORBS =       .02     .00      .10     .09       .10
  4  ANN FORBS
       CHE        .20     18.
       ERCE       .02      2.
       GIPU       .08      8.
       LARE       .01      2.
       SILI       .02      2.
              ANNUAL FORBS =     2.26     .11      .36   10.85     12.16

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         86.29     96.73


  PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                         AND WOODY MAT FORM PLANTS
 ********************                ******************************
 OCT.15 TO APR.15 =    2.80           ARTR              191.85  215.07
 APR.15 TO JULY 1 =    3.20           CHVI                9.04   10.13
 JULY 1 TO SEPT.1 =    1.12           PHHO                9.07   10.17
 SEPT.1 TO OCT.15 =    1.10
 SEASON TOTAL     =    8.22
 LONG TERM AVERAGE=    7.59

                       TOTAL SHRUB PRODUCTION =  209.96  235.37


                            TOTAL PRODUCTION =  296.25  332.10
                            ******************************
 1503.   NORTH BUTE    19    JULY 1980      PELIC

                          NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
**********************************************************************
    6  SHRUBS
         ANDI         .20      1.
         ARTR        8.98     13.
         OPPO         .10      1.
         PHHO         .03      1.
    3  PER GRASS
         AGSP        2.46     19.   40.29     2.01      .82  193.46   216.67
         BOGR         .01      1.     .01      .00      .10     .04      .04
         CAFI        2.60     15.   12.25      .61      .22   58.82    65.94
         STCO        1.40     13.   10.75      .54      .39   51.61    57.85
         POSE         .32      7.     .85      .04      .13    4.08     4.57
                   TOTAL PERENNIAL GRASS PRODUCTION = 308.01   345.28
    2  PER FORBS
         LODR         .02      2.
         APHO2        .05      6.
         CRMO         .07      3.
         SPCO         .07      6.
               PERENNIAL FORBS =    2.16      .11      .55   10.37    11.62
    4  ANN FORBS
         DEPI         .01      1.
         PLPA         .01      1.
         UNK          .01      1.
                  ANNUAL FORBS =     .22      .01      .55    1.05     1.18

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 319.43   358.08


    PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                       AND WOODY MAT FORM PLANTS
  *********************              ******************************
   OCT.15 TO APR.15 =   3.43           ARTR              171.77   192.55
   APR.15 TO JULY 1 =   2.57           OPPO                9.43    10.57
   JULY 1 TO SEPT.1 =   1.81           PHHO                4.47     5.01
   SEPT.1 TO OCT.15 =    .38
   SEASON TOTAL     =   8.19
   LONG TERM AVERAGE=  10.64

                          TOTAL SHRUB PRODUCTION =  185.66   208.13


                                TOTAL PRODUCTION =  505.09   566.21
                                ******************************
  104.   OWL DRAW       26  AUGUST 1980      IM ARNO

                       NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                  CENT   PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                  AREA   BASE            RENCES
                         20
*************************************************************************
   6  SHRUBS
        ANRO        .08      1.
        ARHO        .10      3.
        ARNO      11.36     19.
        ARTR        .65      2.
        CELA        .23      1.
        PHHO        .60     12.
        XASA        .01      1.
   3  PER GRASS
        AGSM        .38     13.    3.84     .19     .51   18.43    20.66
        AGSP        .62      8.    3.89     .19     .32   18.67    20.93
        KOCR       1.40     13.    4.98     .25     .18   23.91    26.80
        POSE        .65     11.    1.62     .08     .12    7.77     8.71
                  TOTAL PERENNIAL GRASS PRODUCTION =      68.78    77.10
   2  PER FORBS
        ARHO2       .03      3.
        ASMI        .04      1.
        CAS         .01      1.
        CRAC        .06      8.
        CYMO        .01      1.
        EROC        .06      6.
        LILE        .03      1.
        VIAM        .04      1.
              PERENNIAL FORBS =    5.26     .26     .86   25.25    28.31

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =      94.03   105.41


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  ********************                ****************************
    OCT.15 TO APR.15 =   E4.50          ARHO              2.06     2.31
    APR.15 TO JULY 1 =    2.10          ARNO            416.72   467.15
    JULY 1 TO SEPT.1 =    1.35          ARTR             14.76    16.55
    SEPT.1 TO OCT.15 =     .18          CHVI              1.25     1.40
    SEASON TOTAL     =    8.13          HAAC               .65      .73
    LONG TERM AVERAGE=    9.64          MAVI              1.70     1.90
                                        PHHO              5.48     6.14

                          TOTAL SHRUB PRODUCTION =      442.62   496.17


                               TOTAL PRODUCTION =   536.65   601.58
                               ******************************
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104.  OWL DRAW        26  AUGUST 1980        IN ARTR

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
PLANT    PLANT     AVE.     1X1      TOTAL     AVE.     WGT./     LBS     KGS
CODE     NAME      PER-     ABS.     WGT.      WGT.     UNIT      PER     PER
                   CENT     PLOT     GMS/20    /PLOT    COVER     ACRE    HA.
                   COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                   AREA     BASE               RENCES
                            20
*************************************************************************
   6  SHRUBS
        ARHO        .10       1.
        ARNO        .09       1.
        ARTR       5.93      14.
        PHHO        .30       7.
   3  PER GRASS
        AGSM       1.29      19.    18.63       .93      .72    89.45   100.27
        AGSP        .03       2.      .65       .03     1.08     3.12     3.50
        KOCR        .04       1.      .06       .00      .06      .28      .31
        POFE        .27       2.     1.10       .06      .20     5.28     5.92
        POSE       2.75      19.     9.64       .48      .18    46.28    51.88
                   TOTAL PERENNIAL GRASS PRODUCTION = 144.41   161.88
   2  PER FORBS
        CANU        .04       3.
        CRAC        .17       8.
        CYMC        .16      12.
        EROC        .18      10.
        SELA        .02       1.
        TKGY        .04       2.
              PERENNIAL FORBS =    2.79       .14      .24    13.39    15.01

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 157.80   176.89


   PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                           AND WOODY MAT FORM PLANTS
*********************                   ******************************
  OCT.15 TO APR.15 =   E4.50              ARHO                 .19      .21
  APR.15 TO JULY 1 =    2.10              ARNO               14.01    15.70
  JULY 1 TO SEPT.1 =    1.35              ARTR              281.63   315.70
  SEPT.1 TO OCT.15 =     .18              CHVI                3.98     4.46
  SEASON TOTAL     =    8.13              HAAC                 .36      .40
  LONG TERM AVERAGE=    9.64              JUOS                3.36     3.76
                                          PHHO                2.31     2.59

                               TOTAL SHRUB PRODUCTION =  305.82   342.82


                                     TOTAL PRODUCTION =  463.62   519.72
                                     ************************************
  406.   RED WASH 2     5  AUGUST 1980      IN NATIVE

                        NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                 CENT   PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
*********************************************************************
   6  SHRUBS
        ARTR      4.77     3.
        CHNA       .07     1.
        CHVI      1.65     1.
        ERBR       .02     1.
        EROV       .04     1.
        PHHO      1.38     8.
        TECA       .15     4.
   3  PER GRASS
        AGSM       .70    14.   11.87     .59      .85   56.99    63.89
        ORHY       .82     8.   14.14     .71      .86   67.89    76.10
        POSE       .04     1.     .21     .01      .30    1.00     1.12
        SIHY       .03     2.     .27     .01      .54    1.29     1.45
        STCO       .78     7.   11.47     .57      .74   55.07    61.73
                 TOTAL PERENNIAL GRASS PRODUCTION =     182.24   204.29
   2  PER FORBS
        ASPU       .02     3.
        PECL       .01     1.
        SILI       .01     2.
             PERENNIAL FORBS =     .14     .01      .20     .67      .75

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 182.91   205.04


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *******************                ****************************
   OCT.15 TO APR.15 =    2.68          ARTR           276.96   310.48
   APR.15 TO JULY 1 =    2.67          CELA             2.02     2.26
   JULY 1 TO SEPT.1 =     .89          CHNA              .74      .83
   SEPT.1 TO OCT.15 =     .85          CHVI            13.45    15.08
   SEASON TOTAL     =    7.09          ERMI              .29      .32
   LONG TERM AVERAGE=    7.02          EROV             1.90     2.13
                                       PHHO             8.49     9.52
                                       TECA            12.20    13.68

                          TOTAL SHRUB PRODUCTION =  316.06   354.30


                               TOTAL PRODUCTION =  498.97   559.35
                               ******************************
```

```
 1504.   ROUND TOP     19    JULY 1980      RELIC

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE    NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                 CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA    BASE             RENCES
                         20
*****************************************************************************
   6  SHRUBS
       ARTR        .41      2.
       XASA        .66      2.
   3  PER GRASS
       AGSP       5.29     18.   68.59    3.43      .65 329.34   369.19
       CAFI       2.44     16.   12.56     .63      .26  60.30    67.60
       KOCR        .40      5.    3.98     .20      .50  19.11    21.42
       POSE        .21      6.     .24     .01      .06   1.15     1.29
       STCO        .64      7.    8.54     .43      .51  41.00    45.96
                 TOTAL PERENNIAL GRASS PRODUCTION = 450.90   505.46
   5  ANN GRASS
       BRTE        .03      2.
              ANNUAL GRASSES =     .07     .00      .12    .33      .37
   2  PER FORBS
       ALTE        .01      1.
       GACO        .04      3.
       ZIVE        .06      5.
             PERENNIAL FORBS =    1.07     .05      .51   5.13     5.75
   4  ANN FORBS
       LARE        .01      1.
       LEDE        .01      1.
               ANNUAL FORBS =      .02     .00      .07    .09      .10

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 456.45   511.68


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  **********************              ****************************
   OCT.15 TO APR.15 =    E3.40          ARFR               .13      .15
   APR.15 TO JULY 1 =    E2.63          ARTR             29.85    33.47
   JULY 1 TO SEPT.1 =     1.70          XASA            119.76   134.28
   SEPT.1 TO OCT.15 =      .48
   SEASON TOTAL     =    E8.24
   LONG TERM AVERAGE=    11.59

                        TOTAL SHRUB PRODUCTION =  149.77   167.89


                             TOTAL PRODUCTION =  606.22   679.57
                             ********************************
  1505.   SAND GULCH     18    JULY 1980      IN NATIVE

                       NUMBER OF PLOTS = 20
                          PLOT SIZE 1X10
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
*******************************************************************************
   6  SHRUBS
        ATGA        10.10     18.   49.49    2.47     .02  237.65   266.41
        OPPO          .19      6.
   3  PER GRASS
        AGCR          .00      1.     .23     .01     .46    1.10     1.23
        AGSM          .12     16.    3.06     .15     .12   14.70    16.48
        AGSP          .14      9.    4.63     .23     .17   22.21    24.90
        POSE          .01      3.     .03     .00     .02     .14      .16
                  TOTAL PERENNIAL GRASS PRODUCTION =       38.15    42.77
   5  ANN GRASS
        BRTE          .05     17.
                ANNUAL GRASSES =      .31     .02     .03    1.50     1.68
   2  PER FORBS
        ALTE          .00      1.
        ERPU          .00      1.
        SPCO          .00      1.
               PERENNIAL FORBS =      .13     .01     .19     .63      .71
   4  ANN FORBS
        DEPI          .00      4.
        LARE          .02      6.
        LEPE          .00      5.
                  ANNUAL FORBS =      .06     .00     .01     .26      .29

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 278.19   311.85


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    ********************              ******************************
     OCT.15 TO APR.15 =  3.05           OPPO              11.59   12.99
     APR.15 TO JULY 1 =  2.75
     JULY 1 TO SEPT.1 =  2.10
     SEPT.1 TO OCT.15 =   .56
     SEASON TOTAL     =  8.46
     LONG TERM AVERAGE=  8.90

                            TOTAL SHRUB PRODUCTION =   11.59   12.99


                                 TOTAL PRODUCTION =  289.78  324.84
                                 **********************************
   1505.   SAND GULCH    13    JULY 1980     OUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X10
 PLANT    PLANT     AVE.    1X1      TOTAL    AVE.     WGT./    LBS    KGS
 CODE     NAME      PER-    ABS.     WGT.     WGT.     UNIT     PER    PER
                    CENT    PLOT     GMS/20   /PLOT    COVER    ACRE   HA.
                    COVER   FREQ.    SQ.FT.   OCCUR-   AREA
                    AREA    BASE              RENCES
                            20
************************************************************************
    6   SHRUBS
          ATGA        8.63      20.  49.40    2.47      .03 237.18   265.88
          OPPD         .26       5.
    3   PER GRASS
          AGSM         .06       9.   1.22     .06      .10   5.85     6.56
          AGSP         .06       4.   1.10     .05      .10   5.27     5.91
          BOGR         .07       6.   1.40     .07      .10   6.70     7.51
          POSE         .06       9.    .43     .02      .04   2.05     2.30
          SIHY         .02       2.    .41     .02      .09   1.96     2.20
                  TOTAL PERENNIAL GRASS PRODUCTION =  21.83    24.47
    5   ANN GRASS
          BRTE         .10      20.
               ANNUAL GRASSES =        .96     .05      .05   4.62     5.18
    4   ANN FORBS
          CAMI         .00       1.
          LARF         .07      14.
          LEPE         .01      14.
          PLPA         .01       4.
                 ANNUAL FORBS =        .71     .04      .04   3.43     3.85

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 267.06  299.37


    PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                          AND WOODY MAT FORM PLANTS
   ********************                *******************************
     OCT.15 TO APR.15 =    3.05          OPPD              4.89    5.48
     APR.15 TO JULY 1 =    2.75
     JULY 1 TO SEPT.1 =    2.10
     SEPT.1 TO OCT.15 =     .56
     SEASON TOTAL     =    8.46
     LONG TERM AVERAGE=    8.90

                           TOTAL SHRUB PRODUCTION =      4.89    5.48


                                  TOTAL PRODUCTION =  271.95  304.85
                                  ***********************************
 1009.   SHOS ANT 2    15  AUGUST 1980       IN NE

                        NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS     KGS
CODE    NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER     PER
                 CENT   PLOT    GMS/10   /PLOT   COVER    ACRE    HA.
                 COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA   BASE             RENCES
                        10
*********************************************************************
   6  SHRUBS
        ARTR     32.75     8.
        OPPO       .02     1.
   3  PER GRASS
        AGSM       .42     9.    3.16      .32      .75   30.34    34.01
        BOGR       .74     4.    1.48      .15      .20   14.21    15.93
        POSE      1.05     8.    1.30      .13      .12   12.48    13.99
        SIHY       .30     2.    3.33      .33     1.11   31.97    35.84
                 TOTAL PERENNIAL GRASS PRODUCTION =       89.00    99.77
   2  PER FORBS
        SPCO       .05     2.
             PERENNIAL FORBS =    .52      .05     1.04    4.99     5.59

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =       93.99   105.36


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  ********************                ******************************
   OCT.15 TO APR.15 =   2.80            ARTR              502.57  563.38
   APR.15 TO JULY 1 =  S4.88            OPPO               13.50   15.13
   JULY 1 TO SEPT.1 =  S1.00            PHHO                1.87    2.10
   SEPT.1 TO OCT.15 =   1.36
   SEASON TOTAL     =  10.04
   LONG TERM AVERAGE=   8.32

                           TOTAL SHRUB PRODUCTION =  517.94   580.61


                                TOTAL PRODUCTION =  611.93   685.98
                                ***********************************
 1009.   SHOS ANT 2    15  AUGUST 1980      IN NW

                         NUMBER OF PLOTS = 10
                           PLOT SIZE 1X1
PLANT   PLANT   AVE.    1X1     TOTAL   AVE.    WGT./   LBS    KGS
CODE    NAME    PER-    ABS.    WGT.    WGT.    UNIT    PER    PER
                CENT    PLOT    GMS/10  /PLOT   COVER   ACRE   HA.
                COVER   FREQ.   SQ.FT.  OCCUR-  AREA
                AREA    BASE            RENCES
                        10
*******************************************************************
   6  SHRUBS
       ARTR     10.24      7.
       OPPO       .23      2.
   3  PER GRASS
       AGSM       .04      2.     .38     .04     .95   3.64    4.08
       BOGR      3.00      6.    6.15     .62     .21  59.06   66.21
       POSE       .31      5.     .38     .04     .12   3.64    4.08
       STCO       .05      1.     .13     .01     .26   1.24    1.39
              TOTAL PERENNIAL GRASS PRODUCTION =       67.58   75.76
   4  ANN FORBS
       LUPU       .03      1.
       PLPA       .02      1.
               ANNUAL FORBS =    1.06     .11    2.12  10.17   11.40

       ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        77.75   87.16


   PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                      AND WOODY MAT FORM PLANTS
  *********************            *******************************
   OCT.15 TO APR.15 =   2.80        ARTR             502.57  563.38
   APR.15 TO JULY 1 =  S4.88        OPPO              13.50   15.13
   JULY 1 TO SEPT.1 =  S1.00        PHHO               1.87    2.10
   SEPT.1 TO OCT.15 =   1.36
   SEASON TOTAL     =  10.04
   LONG TERM AVERAGE=   8.32

                          TOTAL SHRUB PRODUCTION =  517.94  580.61


                              TOTAL PRODUCTION =  595.69  667.77
                              **********************************
 1009.  SHOS ANT 2    15  AUGUST 1980      IN SE

                        NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT   PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         10
*************************************************************************
   6  SHRUBS
        ARTR      15.00     4.
        OPPO        .02     1.
   3  PER GRASS
        AGSM        .04     2.     .10      .01     .25     .96     1.08
        BOGR       2.80     8.   10.84     1.08     .39  104.10   116.70
        ORHY        .12     1.     .55      .06     .46    5.28     5.92
        POSE        .92     7.    1.84      .18     .20   17.67    19.81
        SIHY        .07     2.     .91      .09    1.30    8.73     9.79
        STCO        .26     2.    1.13      .11     .43   10.85    12.16
                 TOTAL PERENNIAL GRASS PRODUCTION =  147.59   165.45
   2  PER FORBS
        SPCO        .01     1.
            PERENNIAL FORBS =      .05      .01     .50     .48      .54
   4  ANN FORBS
        PLPA        .01     1.
                ANNUAL FORBS =     .03      .00     .30     .28      .31

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 148.35  166.30


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  *********************               ******************************
   OCT.15 TO APR.15 =   2.80           ARTR           502.57  563.38
   APR.15 TO JULY 1 =  S4.88           OPPO            13.50   15.13
   JULY 1 TO SEPT.1 =  S1.00           PHHO             1.87    2.10
   SEPT.1 TO OCT.15 =   1.36
   SEASON TOTAL     =  10.04
   LONG TERM AVERAGE=   8.32


                         TOTAL SHRUB PRODUCTION =  517.94  580.61


                              TOTAL PRODUCTION =  666.29  746.92
                              ***********************************
   1009.    SHOS ANT 2    15  AUGUST 1980      IN SW

                          NUMBER OF PLOTS = 10
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.   1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE     NAME      PER-   ABS.    WGT.     WGT.    UNIT    PER    PER
                   CENT   PLOT    GMS/10   /PLOT   COVER   ACRE   HA.
                   COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA   BASE             RENCES
                          10
***********************************************************************
   6  SHRUBS
        ARTR        4.31     5.
        OPPO         .08     1.
        PHHO         .29     1.
   3  PER GRASS
        AGSM         .55    10.    4.46     .45      .81   42.83    48.01
        BOGR         .47     3.    2.57     .26      .55   24.68    27.67
        POSE         .86     5.    1.65     .17      .19   15.84    17.76
        STCO         .08     1.     .23     .02      .29    2.20     2.47
                   TOTAL PERENNIAL GRASS PRODUCTION =      85.55    95.90
   5  ANN GRASS
        BRTE         .02     1.
                ANNUAL GRASSES =    .02     .00      .10     .19      .21
        SPCO         .01     1.
   2  PER FORBS
                  PERENNIAL FORBS = .05     .01        R     .48      .54
   4  ANN FORBS
        PLPA         .01     1.
                    ANNUAL FORBS =  .02     .00      .20     .19      .21

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =     86.41    96.87


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  ********************                ******************************
   OCT.15 TO APR.15 =    2.80           ARTR            502.57  563.38
   APR.15 TO JULY 1 =   S4.88           OPPO             13.50   15.13
   JULY 1 TO SEPT.1 =   S1.00           PHHO              1.87    2.10
   SEPT.1 TO OCT.15 =    1.36
   SEASON TOTAL     =   10.04
   LONG TERM AVERAGE=    8.32

                         TOTAL SHRUB PRODUCTION =  517.94  580.61


                              TOTAL PRODUCTION =  604.35  677.48
                              ********************************
```

```
 1009.   SHOS ANT 2    15  AUGUST 1980     OUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT   PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME    PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                 CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA    BASE             RENCES
                         20
*******************************************************************************
   6  SHRUBS
       ARTR       7.46     11.
       OPPO        .17      2.
       PHHO        .04      1.
   3  PER GRASS
       AGSM        .38     16.    4.34      .22     .58   20.83    23.35
       BOGR       2.18     10.    6.72      .34     .15   32.26    36.16
       POSE       1.07     14.    3.29      .16     .15   15.79    17.70
       SIHY        .03      1.     .39      .02     .78    1.87     2.10
       STCO        .07      2.     .87      .04     .67    4.17     4.67
                TOTAL PERENNIAL GRASS PRODUCTION =        74.92    83.99
   2  PER FORBS
       ALTE        .01      1.
       SPCO        .02      1.
              PERENNIAL FORBS =    .24      .01     .60    1.15     1.29
   4  ANN FORBS
       PLPA        .06      4.
       SAKA        .08     11.
                ANNUAL FORBS =     .18      .01     .06     .86      .96

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        76.93    86.24


    PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                       AND WOODY MAT FORM PLANTS
   ********************              ******************************
    OCT.15 TO APR.15 =   2.80         ARTR              495.92  555.93
    APR.15 TO JULY 1 =  S4.88         OPPO                6.41    7.18
    JULY 1 TO SEPT.1 =  S1.00         PHHO                2.41    2.70
    SEPT.1 TO OCT.15 =   1.36
    SEASON TOTAL     =  10.04
    LONG TERM AVERAGE=   8.32

                             TOTAL SHRUB PRODUCTION =  504.74  565.81


                                  TOTAL PRODUCTION =  581.67  652.05
                                  **********************************
```

```
  1011.   SHOS ANT 4     15  AUGUST 1980      IN NE

                          NUMBER OF PLOTS = 10
                             PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           10
*****************************************************************************
    6  SHRUBS
         ARTR     14.60       4.
         OPPO       .60       2.
    3  PER GRASS
         AGSM       .75       7.    2.43       .24      .32   23.33    26.15
         BOGR      1.51       5.    4.16       .42      .28   39.95    44.78
         POSE      1.21       9.    1.77       .18      .15   16.99    19.05
         SIHY       .34       2.    1.56       .16      .46   14.98    16.79
                  TOTAL PERENNIAL GRASS PRODUCTION =          95.25   106.78
    4  ANN FORBS
         SPCO       .03       1.
                 ANNUAL FORBS =      .10       .01      .33     .96     1.08

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =              96.21   107.65


     PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                           AND WOODY MAT FORM PLANTS
    ********************                  ******************************
     OCT.15 TO APR.15 =   3.28              ARTR             228.23   255.84
     APR.15 TO JULY 1 =   3.50              OPPO              19.97    22.39
     JULY 1 TO SEPT.1 =    .65              PHHO               1.77     1.98
     SEPT.1 TO OCT.15 =   E.75
     SEASON TOTAL     =  E8.18
     LONG TERM AVERAGE=   7.80

                               TOTAL SHRUB PRODUCTION =   249.96   280.21


                                    TOTAL PRODUCTION =   346.17   388.06
                                    ***********************************
  1011.   SHOS ANT 4    15  AUGUST 1980      IN NW

                        NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL   AVE.    WGT./   LBS    KGS
CODE    NAME     PER-   ABS.   WGT.    WGT.    UNIT    PER    PER
                 CENT   PLOT   GMS/10  /PLOT   COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.  OCCUR-  AREA
                 AREA   BASE           RENCES
                        10
*****************************************************************************
   6  SHRUBS
        ARTP       5.20      2.
        OPPO        .8E      2.
   3  PER GRASS
        AGSM        .53      8.    2.96     .30      .56   28.42    31.86
        BOGR       2.61      6.    5.48     .55      .21   52.62    58.99
        ORHY        .04      1.     .01     .00      .03     .09      .10
        POSE        .75      3.    1.25     .13      .17   12.00    13.45
        STCO        .22      3.     .24     .02      .11    2.30     2.58
                 TOTAL PERENNIAL GRASS PRODUCTION =        95.43   106.98
   5  ANN GRASS
        VUOC        .01      1.
               ANNUAL GRASSES =     .01     .00      .10     .09      .10
   2  PER FORBS
        ALTE        .01      1.
        SPCO        .08      3.
             PERENNIAL FORBS =      .40     .04      .44    3.84     4.30

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         99.36   111.38


     PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    *******************                 *****************************
     OCT.15 TO APR.15 =    3.28           ARTR             228.23   255.84
     APR.15 TO JULY 1 =    3.50           OPPO              19.97    22.39
     JULY 1 TO SEPT.1 =     .65           PHHO               1.77     1.98
     SEPT.1 TO OCT.15 =    E.75
     SEASON TOTAL     =   E8.18
     LONG TERM AVERAGE=    7.80

                        TOTAL SHRUB PRODUCTION =  249.96   280.21


                            TOTAL PRODUCTION =  349.32   391.59
                            **********************************
```

```
 1011.   SHDS ANT 4     15  AUGUST 1960       IN SE

                       NUMBER OF PLOTS = 10
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.   1X1     TOTAL     AVE.    WGT./    LBS     KGS
CODE     NAME      PER-   ABS.    WGT.      WGT.    UNIT     PER     PER
                   CENT   PLOT    GMS/10    /PLOT   COVER    ACRE    HA.
                   COVER  FREQ.   SQ.FT.    OCCUR-  AREA
                   AREA   BASE              RENCES
                          10
****************************************************************************
   6  SHRUBS
        ARTR     11.21      7.
        OPPO       .18      2.
        PHHO       .26      1.
   3  PER GRASS
        AGSM       .03      2.      .60      .06    2.00     5.76     6.46
        BOGP       .65      2.     2.10      .21     .32    20.16    22.60
        POSE       .86      7.     2.06      .21     .24    19.78    22.17
        STCO       .05      1.      .36      .04     .72     3.45     3.87
                 TOTAL PERENNIAL GRASS PRODUCTION =         49.15    55.10
   2  PER FORBS
        SPCD       .04      1.
             PERENNIAL FORBS =      .35      .04     .88     3.36     3.77
   4  ANN FORBS
        LUPU       .04      1.
                ANNUAL FORBS =     1.99      .20    4.98    19.11    21.42

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         71.62    80.29


   PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                          AND WOODY MAT FORM PLANTS
  *********************               ******************************
  OCT.15 TO APR.15 =   3.28             ARTR              228.23   255.84
  APR.15 TO JULY 1 =   3.50             OPPO               19.97    22.39
  JULY 1 TO SEPT.1 =    .65             PHHO                1.77     1.98
  SEPT.1 TO OCT.15 =   E.75
  SEASON TOTAL     =  E8.18
  LONG TERM AVERAGE=   7.80

                          TOTAL SHRUB PRODUCTION =  249.96   280.21


                              TOTAL PRODUCTION =  321.58  360.49
                              ********************************
 1011.   SHOS ANT 4    15  AUGUST 1980      IN SW

                     NUMBER OF PLOTS = 10
                     PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                 CENT   PLOT   GMS/10   /PLOT   COVER    ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        10
******************************************************************************
  6  SHRUBS
       ARTR        8.06     4.
       OPPO        1.13     3.
  3  PER GRASS
       BOGR        4.54     9.  17.94    1.79     .40 172.28   193.13
       POSE         .92     8.   1.39     .14     .15  13.34    14.95
       STCO         .48     2.   2.80     .28     .58  26.88    30.13
                 TOTAL PERENNIAL GRASS PRODUCTION = 212.50   238.21
  2  PER FORBS
       SPCO         .08     3.
            PERENNIAL FORBS =     .15     .02     .19   1.44     1.61

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 213.94   239.83


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *********************               *****************************
   OCT.15 TO APR.15 =   3.28            ARTR             228.23  255.84
   APR.15 TO JULY 1 =   3.50            OPPO              19.97   22.39
   JULY 1 TO SEPT.1 =    .65            PHHO               1.77    1.98
   SEPT.1 TO OCT.15 =   E.75
   SEASON TOTAL     =  E8.18
   LONG TERM AVERAGE=   7.80

                           TOTAL SHRUB PRODUCTION =  249.96  280.21


                                 TOTAL PRODUCTION =  463.90  520.04
                                 ********************************
 1C11.   SHOS ANT 4    15  AUGUST 1960      CUT NATIVE

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
*********************************************************************************
   6  SHRUBS
        ARTR       6.38      7.
        OPPO        .11      2.
   3  PER GRASS
        BOGR       4.86     16.   20.70     1.04      .21   99.39   111.42
        POSE        .88     14.    5.02      .25      .29   24.10    27.02
        STCO        .40      5.    4.03      .20      .51   19.35    21.69
                   TOTAL PERENNIAL GRASS PRODUCTION = 142.84   160.12
   2  PER FORBS
        SPCO        .03      1.
              PERENNIAL FORBS =     .44      .02      .88    2.11     2.37
   4  ANN FORBS
        PLPA        .02      3.
        SAKA        .01      2.
                 ANNUAL FORBS =     .12      .01      .24     .57      .64

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 145.52  163.13


   PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                           AND WOODY MAT FORM PLANTS
  *********************                 *****************************
  OCT.15 TO APR.15 =    3.28              ARTR             296.41  332.28
  APR.15 TO JULY 1 =    3.50              OPPO              28.19   31.60
  JULY 1 TO SEPT.1 =     .65
  SEPT.1 TO OCT.15 =    E.75
  SEASON TOTAL     =   E8.18
  LONG TERM AVERAGE=    7.80

                             TOTAL SHRUB PRODUCTION =  324.60  363.87


                                  TOTAL PRODUCTION =  470.12  527.00
                                  **********************************
 1013.    SHOS ANT 7    15  AUGUST 1980      IN NE
```

?, 1003

```
                         NUMBER OF PLOTS = 10
                         PLOT SIZE 1X1
PLANT   PLANT    AVE.    1X1      TOTAL    AVE.     WGT./   LBS     KGS
CODE    NAME     PER-    ABS.     WGT.     WGT.     UNIT    PER     PER
                 CENT    PLOT     GMS/10   /PLOT    COVER   ACRE    HA.
                 COVER   FREQ.    SQ.FT.   OCCUR-   AREA
                 AREA    BASE              RENCES
                         10
******************************************************************************
   6  SHRUBS
         ARTR     5.35     5.
         OPPO      .13     1.
         PHHO      .25     1.
   3  PER GRASS
         AGSM      .13     4.      .77      .08      .59     7.39      8.28
         BOGR      .45     2.      .72      .07      .16     6.91      7.75
         POSE     1.17     5.     1.35      .14      .12    12.96     14.53
         STCO      .03     1.      .06      .01      .20      .57       .64

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   27.83     31.20


    PRECIPITATION DATA                    PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                            AND WOODY MAT FORM PLANTS
   *********************                  *****************************
   OCT.15 TO APR.15 =   3.16                ARTR            209.62  234.98
   APR.15 TO JULY 1 =   3.39                OPPO              9.44   10.58
   JULY 1 TO SEPT.1 =    .56                PHHO              6.22    6.98
   SEPT.1 TO OCT.15 =    .78
   SEASON TOTAL     =   7.89
   LONG TERM AVERAGE=   8.20

                          TOTAL SHRUB PRODUCTION =  225.28  252.54


                               TOTAL PRODUCTION =  253.11  283.74
                               **********************************
```

```
 1013.   SHOS ANT 7    15  AUGUST 1960      IN NW

                        NUMBER OF PLOTS = 10
                          PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT    PLOT    GMS/10   /PLOT   COVER   ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          10
*********************************************************************
   6  SHRUBS
        ARTR     11.75      4.
        OPPO       .33      2.
        PHHO       .12      1.
   3  PER GRASS
        AGSM       .28      7.     2.69      .27     .96   25.83    28.96
        BOGR      3.08      3.     4.64      .48     .16   46.48    52.10
        POSE       .82      7.     1.66      .17     .20   15.94    17.87
        STCO       .52      2.     3.43      .34     .66   32.93    36.91
                TOTAL PERENNIAL GRASS PRODUCTION = 121.18   135.84
   2  PER FORBS
        ASPU       .07      1.
             PERENNIAL FORBS =     2.27      .23    3.24   21.79    24.43

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 142.97   160.27


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *********************               ******************************
  OCT.15 TO APR.15 =  3.16              ARTR            209.62  234.98
  APR.15 TO JULY 1 =  3.39              OPPO              9.44   10.58
  JULY 1 TO SEPT.1 =   .56              PHHO              6.22    6.98
  SEPT.1 TO OCT.15 =   .78
  SEASON TOTAL     =  7.89
  LONG TERM AVERAGE=  8.20

                       TOTAL SHRUB PRODUCTION =  225.28  252.54


                                TOTAL PRODUCTION =  368.25  412.81
                                ***********************************
```

```
1013.   SHOS ANT 7    15  AUGUST 1980      IN SE
1008
                    NUMBER OF PLOTS = 10
                      PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                  CENT    PLOT    GMS/10   /PLOT    COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                  AREA    BASE             RENCES
                          10
***********************************************************************
  6  SHRUBS
      ARTR        1.80      4.
      OPPO         .25      3.
      PHHO         .05      2.
  3  PER GRASS
      AGSM         .17      6.     1.36      .14      .80   13.06    14.64
      BOGR        1.67      4.     3.36      .34      .20   32.26    36.16
      POSE         .90      5.     1.07      .11      .12   10.27    11.51
      STCO         .11      3.      .54      .05      .49    5.18     5.81
                TOTAL PERENNIAL GRASS PRODUCTION =         60.77    68.12
  2  PER FORBS
      SPCO         .02      1.
         PERENNIAL FORBS =          .12      .01      .60    1.15     1.29
  4  ANN FORBS
      LUPU         .03      1.
      PLPA         .02      1.
               ANNUAL FORBS =       .27      .03      .54    2.59     2.90

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =           64.51    72.32


  PRECIPITATION DATA                     PRODUCTION ESTIMATES OF SHRUBS
  RAIN GAUGE                             AND WOODY MAT FORM PLANTS
  ********************                   ******************************
  OCT.15 TO APR.15 =      3.16            ARTR             209.62  234.98
  APR.15 TO JULY 1 =      3.39            OPPO               9.44   10.58
  JULY 1 TO SEPT.1 =       .56            PHHO               6.22    6.98
  SEPT.1 TO OCT.15 =       .78
  SEASON TOTAL     =      7.89
  LONG TERM AVERAGE=      8.20

                         TOTAL SHRUB PRODUCTION =  225.28  252.54


                                TOTAL PRODUCTION =  289.79  324.86
                                **********************************
  1C13.   SHOS ANT 7   15 AUGUST 1980      IN SW
  1013
                    NUMBER OF PLOTS = 10
                      PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL  AVE.   WGT./   LBS   KGS
CODE    NAME    PER-   ABS.   WGT.   WGT.   UNIT    PER   PER
                CENT   PLOT   GMS/10 /PLOT  COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT. OCCUR- AREA
                AREA   BASE          RENCES
                       10
**********************************************************************
   6  SHRUBS
        ARTR    12.99     7.
        OPPO      .75     1.
   3  PER GRASS
        AGSM      .10     5.   1.29    .13   1.29  12.38   13.88
        BOGR      .25     2.    .73    .07    .29   7.01    7.86
        POSE      .61     7.   1.36    .14    .22  13.06   14.64
        STCO      .07     2.    .52    .05    .74   4.99    5.59
                TOTAL PERENNIAL GRASS PRODUCTION = 37.44   41.97
   2  PER FORBS
        SPCO      .01     1.
            PERENNIAL FORBS =   .16    .02   1.60   1.53    1.72
   4  ANN FORBS
        PLPA      .02     1.
               ANNUAL FORBS =   .15    .02    .75   1.44    1.61

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 40.41   45.30


     PRECIPITATION DATA           PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                   AND WOODY MAT FORM PLANTS
   ********************           ******************************
    OCT.15 TO APR.15 = 3.16         ARTR          209.62  234.98
    APR.15 TO JULY 1 = 3.39         OPPO            9.44   10.58
    JULY 1 TO SEPT.1 =  .56         PHHO            6.22    6.98
    SEPT.1 TO OCT.15 =  .78
    SEASON TOTAL     = 7.89
    LONG TERM AVERAGE= 8.20

                        TOTAL SHRUB PRODUCTION =  225.28  252.54


                              TOTAL PRODUCTION =  265.69  297.84
                              **********************************
```

```
 1013.   SHOS ANT 7     15  AUGUST 1980       OUT NATIVE
 1003

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                  CENT    PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                  AREA    BASE             RENCES
                          20
*******************************************************************************
   6  SHRUBS
        ARTR        4.45     9.
        OPPO         .49     6.
   3  PER GRASS
        AGSM         .38    12.     3.62      .18      .48   17.38     19.48
        BOGR        6.04    13.    16.14      .81      .13   77.49     86.87
        CAFI         .10     1.      .30      .02      .15    1.44      1.61
        ORHY         .05     1.      .24      .01      .24    1.15      1.29
        POSE        1.01    17.     1.99      .10      .10    9.55     10.71
        STCO         .88     8.    10.23      .51      .58   49.12     55.06
                  TOTAL PERENNIAL GRASS PRODUCTION =        156.13    175.02
   2  PER FORBS
        ALTE         .01     1.
        SILI         .01     1.
        SPCO         .04     6.
             PERENNIAL FORBS =        .24      .01      .24    1.15      1.29
   4  ANN FORBS
        PLPA         .07     8.
                ANNUAL FORBS =        .15      .01      .12     .72       .81

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            158.00    177.12


   PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                           AND WOODY MAT FORM PLANTS
 *******************                    *****************************
  OCT.15 TO APR.15 =     3.16            ARTR               107.92   120.98
  APR.15 TO JULY 1 =     3.39            OPPO                16.66    18.68
  JULY 1 TO SEPT.1 =      .56
  SEPT.1 TO OCT.15 =      .78
  SEASON TOTAL     =     7.89
  LONG TERM AVERAGE=     8.20

                         TOTAL SHRUB PRODUCTION =  124.58   139.66


                              TOTAL PRODUCTION =  282.58   316.77
                              ********************************
 1014.   SHOS ANT 8    22  AUGUST 1980      IN NE

                       NUMBER OF PLOTS = 10
                         PLOT SIZE 1X1
PLANT   PLANT     AVE.   1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE    NAME      PER-   ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT   PLOT    GMS/10  /PLOT    COVER   ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         10
************************************************************
   6  SHRUBS
        ARTR     12.37     6.
        OPPO       .15     1.
   3  PER GRASS
        AGSM       .22     6.    3.32     .33    1.51   31.88    35.74
        BOGR       .93     3.    1.94     .19     .21   18.63    20.88
        POSE       .02     9.    1.85     .19     .20   17.76    19.91
        STCO       .92     5.    6.94     .69     .75   66.64    74.70
                 TOTAL PERENNIAL GRASS PRODUCTION = 134.91  151.23
   2  PER FORBS
        SPCC       .02     1.
           PERENNIAL FORBS =      .28     .03    1.40    2.68     3.00
   4  ANN FORBS
        PLPA       .16     5.
                ANNUAL FORBS =    .82     .08     .51    7.87     8.82

       ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 145.46  163.06


   PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                       AND WOODY MAT FORM PLANTS
*********************               ******************************
  OCT.15 TO APR.15 =     3.26         ARTR              380.81  426.89
  APR.15 TO JULY 1 =     3.78         OPPO               20.09   22.52
  JULY 1 TO SEPT.1 =      .50         PHHO                 .42     .47
  SEPT.1 TO OCT.15 =      .75
  SEASON TOTAL     =     8.29
  LONG TERM AVERAGE=     8.06

                        TOTAL SHRUB PRODUCTION =  401.33  449.89


                             TOTAL PRODUCTION =  546.79  612.95
                             *********************************
 1014.   SHOS ANT 8    22  AUGUST 1980       IN NW

                        NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
PLANT   PLANT   AVE.    1X1     TOTAL   AVE.    WGT./   LBS     KGS
CODE    NAME    PER-    ABS.    WGT.    WGT.    UNIT    PER     PER
                CENT    PLOT    GMS/10  /PLOT   COVER   ACRE    HA.
                COVER   FREQ.   SQ.FT.  OCCUR-  AREA
                AREA    BASE            RENCES
                        10
***********************************************************************
   6  SHRUBS
        ARTR      2.07      3.
        OPPO       .83      2.
   3  PER GRASS
        AGSM      1.02     10.   11.00    1.10    1.08 105.63   118.41
        BOGR      1.06      3.    2.04     .20     .19  19.59    21.96
        POSE       .79      8.    1.24     .12     .16  11.90    13.34
        STCO       .86      6.    2.08     .21     .24  19.97    22.39
                TOTAL PERENNIAL GRASS PRODUCTION = 157.09   176.10
   2  PER FORBS
        SPCO       .19      4.
              PERENNIAL FORBS =   1.79     .18     .94  17.19    19.27

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 174.28   195.37


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  *******************                 ****************************
   OCT.15 TO APR.15 =  3.26            ARTR            380.81  426.89
   APR.15 TO JULY 1 =  3.78            OPPO             20.09   22.52
   JULY 1 TO SEPT.1 =   .50            PHHO               .42     .47
   SEPT.1 TO OCT.15 =   .75
   SEASON TOTAL     =  8.29
   LONG TERM AVERAGE=  8.06

                         TOTAL SHRUB PRODUCTION =  401.33  449.89


                              TOTAL PRODUCTION =  575.61  645.26
                              ********************************
 1014.   SHOS ANT 8     22  AUGUST 1980       IN SE

                         NUMBER OF PLOTS = 10
                         PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           10
*******************************************************************************
   6  SHRUBS
        ARTR        .72       3.
        OPPO       2.22       5.
        PHHO        .75       1.
   3  PER GRASS
        AGSM        .02       1.      .03      .00      .15      .28      .31
        BOGR       2.09       4.     2.76      .28      .13    26.50    29.71
        POSE       1.01       7.      .51      .05      .05     4.89     5.48
        SIHY        .16       2.      .80      .08      .44     7.68     8.61
        STCO       1.43       5.     8.59      .86      .60    82.49    92.47
                 TOTAL PERENNIAL GRASS PRODUCTION = 121.84   136.58
   2  PER FORBS
        SPCO        .08       2.
           PERENNIAL FORBS =          .26      .03      .33     2.49     2.79
   4  ANN FORBS
        PLPA        .09       4.
                ANNUAL FORBS =        .06      .01      .07      .57      .64

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 124.90   140.01


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  *********************               ******************************
   OCT.15 TO APR.15 =  3.26             ARTR            380.81   426.89
   APR.15 TO JULY 1 =  3.78             OPPO             20.09    22.52
   JULY 1 TO SEPT.1 =   .50             PHHO               .42      .47
   SEPT.1 TO OCT.15 =   .75
   SEASON TOTAL     =  8.29
   LONG TERM AVERAGE=  8.06

                           TOTAL SHRUB PRODUCTION =  401.33   449.89


                               TOTAL PRODUCTION =  526.23   589.90
                               **********************************
```

```
 1014.   SHOS ANT 6    22  AUGUST 1980      IN SW

                         NUMBER OF PLOTS = 10
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME      PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT   PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER  FREC.   SQ.FT.   OCCUR-  AREA
                   AREA   BASE             RENCES
                          10
***************************************************************
   6  SHRUBS
        ARTR       9.60      3.
        OPPO        .85      2.
   3  PER GRASS
        AGSM        .11      6.     1.26     .13    1.15   12.10    13.56
        BOGR       1.39      3.     1.44     .14     .10   13.82    15.49
        POSE       1.61   .  8.     2.75     .28     .17   26.40    29.59
        STCO       2.94      9.    18.59    1.86     .63  178.52   200.12
                  TOTAL PERENNIAL GRASS PRODUCTION =  230.84   258.77
   4  ANN FORBS
       PLPA         .20      7.
                ANNUAL FORBS =      .06      .01     .03     .57      .64

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 231.41   259.41


   PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                           AND WOODY MAT FORM PLANTS
*********************                   *****************************
  OCT.15 TO APR.15 =   3.26               ARTR             380.81  426.69
  APR.15 TO JULY 1 =   3.78               OPPO              20.09   22.52
  JULY 1 TO SEPT.1 =    .50               PHHO                .42     .47
  SEPT.1 TO OCT.15 =    .75
  SEASON TOTAL     =   8.29
  LONG TERM AVERAGE=   8.06

                          TOTAL SHRUB PRODUCTION =  401.33  449.89


                               TOTAL PRODUCTION =  632.74  709.30
                               *********************************
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1015.   SHOS ANT 9    15  AUGUST 1980       IN NE

                            NUMBER OF PLOTS = 10
                              PLOT SIZE 1X1
PLANT     PLANT     AVE.      1X1       TOTAL     AVE.      WGT./     LBS       KGS
CODE      NAME      PER-      ABS.      WGT.      WGT.      UNIT      PER       PER
                    CENT      PLOT      GMS/10    /PLOT     COVER     ACRE      HA.
                    COVER     FREQ.     SQ.FT.    OCCUR-    AREA
                    AREA      BASE                RENCES
                              10
**************************************************************************************
   6  SHRUBS
         ARTR       15.20        6.
         OPPO         .18        1.
         PHHO         .35        1.
   3  PER GRASS
         AGSM         .16        7.     2.02        .20      1.26     19.39     21.74
         BOGR        1.02        4.     1.27        .13       .12     12.19     13.66
         CAFI         .15        5.      .53        .05       .35      5.08      5.69
         POSE         .80        6.      .82        .08       .10      7.87      8.82
         SIHY         .01        1.      .84        .08      8.40      8.06      9.04
         STCC         .22        2.      .18        .02       .08      1.72      1.93
                  TOTAL PERENNIAL GRASS PRODUCTION =                  54.31     60.88
   2  PER FORBS
         SFCO         .03        2.
              PERENNIAL FORBS =          .25        .03       .83      2.40      2.69

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =                   56.71     63.57


    PRECIPITATION DATA                    PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                            AND WOODY MAT FORM PLANTS
   *********************                  *******************************
   OCT.15 TO APR.15 =  3.26                 ARTR              393.64   441.27
   APR.15 TO JULY 1 =  3.56                 OPPO               10.76    12.07
   JULY 1 TO SEPT.1 =   .56                 PHHO               12.58    14.10
   SEPT.1 TO OCT.15 =   .79
   SEASON TOTAL     =  8.17
   LONG TERM AVERAGE=  8.13

                                TOTAL SHRUB PRODUCTION =  416.99   467.44


                                     TOTAL PRODUCTION =  473.70   531.02
                                     **********************************
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 1015.   SHOS ANT 9    15  AUGUST 1980      IN NW

                       NUMBER OF PLOTS = 10
                         PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT   PLOT    GMS/10   /PLOT   COVER   ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         10
***********************************************************************
   6  SHRUBS
        ARTR      23.06     8.
        OPPO       1.06     5.
        PHHO        .10     1.
   3  PER GRASS
        AGSM        .15     6.     1.90      .19    1.27   18.24    20.45
        BOGR       1.27     4.     3.15      .32     .25   30.25    33.91
        POSE       1.70     9.     3.88      .39     .23   37.26    41.77
        SIHY        .03     1.      .50      .05    1.67    4.80     5.38
        STCO        .17     1.      .63      .06     .37    6.05     6.78
                  TOTAL PERENNIAL GRASS PRODUCTION =        96.60   108.29
   4  ANN FORBS
        PLPA        .01     1.
                 ANNUAL FORBS =     .06      .01     .60     .57      .64

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  97.17   108.93


    PRECIPITATION DATA                     PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                             AND WOODY MAT FORM PLANTS
   *********************                   *****************************
   OCT.15 TO APR.15 =  3.26                  ARTR            393.64  441.27
   APR.15 TO JULY 1 =  3.56                  OPPO             10.76   12.07
   JULY 1 TO SEPT.1 =   .56                  PHHO             12.58   14.10
   SEPT.1 TO OCT.15 =   .79
   SEASON TOTAL     =  8.17
   LONG TERM AVERAGE=  8.13

                             TOTAL SHRUB PRODUCTION =  416.99  467.44


                                   TOTAL PRODUCTION =  514.16  576.37
                                   **********************************
   1015.   SHOS ANT 9    15  AUGUST 1980      IN SE

                      NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
 PLANT    PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                   CENT   PLOT   GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                   AREA   BASE            RENCES
                          10
****************************************************************************
   6  SHRUBS
        ARTR      8.90     6.
        OPPO       .02     2.
   3  PER GRASS
        AGSM       .33     6.    5.50      .55    1.67   52.81    59.20
        BOGR      1.07     3.    3.09      .31     .29   29.67    33.26
        CAFI       .11     3.     .23      .02     .21    2.20     2.47
        POSE       .69     7.     .69      .07     .10    6.62     7.42
        SIHY       .07     2.     .13      .01     .19    1.24     1.39
        STCO       .01     1.     .13      .01    1.30    1.24     1.39

      ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   93.78  105.13


    PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                       AND WOODY MAT FORM PLANTS
   ********************             ******************************
   OCT.15 TO APR.15 =   3.26          ARTR              393.64  441.27
   APR.15 TO JULY 1 =   3.56          OPPO               10.76   12.07
   JULY 1 TO SEPT.1 =    .56          PHHO               12.58   14.10
   SEPT.1 TO OCT.15 =    .79
   SEASON TOTAL     =   8.17
   LONG TERM AVERAGE=   8.13

                          TOTAL SHRUB PRODUCTION =  416.99  467.44


                                 TOTAL PRODUCTION =  510.77  572.57
                                 **********************************
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```
  1015.    SHOS ANT 9    15  AUGUST 1980       IN SW

                         NUMBER OF PLOTS = 10
                           PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          10
*************************************************************************
   6  SHRUBS
        ARTR       16.25     8.
        OPPO        1.51     4.
   3  PER GRASS
        AGSM         .36     8.    4.06      .41     1.13   38.98    43.70
        BOGR        1.49     3.    1.98      .20      .13   19.01    21.31
        POSE        1.13     6.    2.83      .28      .25   27.17    30.46
        STCO         .17     3.    2.64      .26     1.55   25.35    28.42
                  TOTAL PERENNIAL GRASS PRODUCTION =       110.51   123.88
   2  PER FORBS
        SPCO         .06     4.
            PERENNIAL FORBS =       .59      .06      .98    5.66     6.34

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =       116.17   130.23


    PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                          AND WOODY MAT FORM PLANTS
   *********************                *****************************
    OCT.15 TO APR.15 =    3.26            ARTR             393.64  441.27
    APR.15 TO JULY 1 =    3.56            OPPO              10.76   12.07
    JULY 1 TO SEPT.1 =     .56            PHHO              12.58   14.10
    SEPT.1 TO OCT.15 =     .79
    SEASON TOTAL     =    8.17
    LONG TERM AVERAGE=    8.13

                          TOTAL SHRUB PRODUCTION =  416.99  467.44


                                 TOTAL PRODUCTION =  533.16  597.67
                                 ***********************************
   1015.   SHOS ANT 9     15  AUGUST 1980      OUT NATIVE

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1    TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.   WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT   GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.  SQ.FT.   OCCUR-  AREA
                   AREA    BASE            RENCES
                           20
************************************************************
    6  SHRUBS
         ARTR      6.94     15.
         OPPO       .22      2.
         PHHO      1.04      7.
    3  PER GRASS
         AGSM       .27     17.    4.62     .23      .87   22.18    24.66
         BOGR       .67      5.    3.22     .16      .24   15.46    17.33
         POSE      1.51     14.    4.47     .22      .15   21.46    24.06
         STHY       .06      2.     .42     .02      .35    2.01     2.25
         STCO       .08      4.     .59     .03      .39    2.83     3.17
                   TOTAL PERENNIAL GRASS PRODUCTION =      63.94    71.68
    2  PER FORBS
         SPCO       .01      1.
               PERENNIAL FORBS =    .04     .00      .20     .19      .21
    4  ANN FORBS
         PLPA       .02      3.
                  ANNUAL FORBS =    .07     .00      .23     .33      .37

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  64.46    72.26


     PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                         AND WOODY MAT FORM PLANTS
   *********************                *******************************
    OCT.15 TO APR.15 = 3.26               ARTR              321.93  360.88
    APR.15 TO JULY 1 = 3.56               OPPO               22.48   25.20
    JULY 1 TO SEPT.1 =  .56               PHHO               29.03   32.54
    SEPT.1 TO OCT.15 =  .79
    SEASON TOTAL     = 8.17
    LONG TERM AVERAGE= 8.13

                          TOTAL SHRUB PRODUCTION =  373.44  418.62


                               TOTAL PRODUCTION =  437.90  490.88
                               **********************************
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```
  1017.    SHOS ANT11     22  AUGUST 1980       IN NE

                          NUMBER OF PLOTS = 10
                            PLOT SIZE 1X1
 PLANT    PLANT     AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
 CODE     NAME      PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                    CENT    PLOT    GMS/10   /PLOT    COVER    ACRE    HA.
                    COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                    AREA    BASE             RENCES
                            10
*******************************************************************************
    6  SHRUBS
         ARTR       6.87      5.
         OPPO        .38      2.
    3  PER GRASS
         AGSM        .01      1.      .34      .03     3.40     3.26      3.65
         BOGR       4.58      7.     8.45      .84      .18    81.14     90.96
         ORHY        .10      1.      .97      .10      .97     9.31     10.44
         POSE       1.39      6.     2.61      .26      .19    25.06     28.09
                   TOTAL PERENNIAL GRASS PRODUCTION = 118.77   133.14
    2  PER FORBS
        ERPU         .04      1.
             PERENNIAL FORBS =        .47      .05     1.18     4.51      5.06
    4  ANN FORBS
         PLPA        .03      2.
                 ANNUAL FORBS =       .04      .00      .13      .38       .43

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 123.66   138.62


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
   *********************              ****************************
    OCT.15 TO APR.15 =  2.44            ARTR              463.50   519.59
    APR.15 TO JULY 1 =  5.08            OPPO               20.54    23.02
    JULY 1 TO SEPT.1 =   .74
    SEPT.1 TO OCT.15 =  1.24
    SEASON TOTAL     =  9.50
    LONG TERM AVERAGE=  8.20

                         TOTAL SHRUB PRODUCTION =  484.04   542.61


                              TOTAL PRODUCTION =  607.70   681.24
                              ******************************
 1017.   SHUS ANT11    22  AUGUST 1980      IN NW

                     NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                  CENT    PLOT    GMS/10   /PLOT    COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                  AREA    BASE             RENCES
                          10
*************************************************************************
   6  SHRUBS
        ARTR      22.88     10.
        OPPO        .04      1.
   3  PER GRASS
        AGSM        .28      6.     2.50      .25      .89   24.00    26.90
        BOGR       1.35      6.     1.14      .11      .08   10.94    12.26
        POSE        .69      5.     1.02      .10      .15    9.79    10.97
        STCO        .27      5.     1.09      .11      .40   10.46    11.73
                TOTAL PERENNIAL GRASS PRODUCTION =           55.19    61.87
   2  PER FORBS
        SPCO        .08      3.
            PERENNIAL FORBS =        .16      .02      .20    1.53     1.72

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            56.72    63.58


    PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *********************                ******************************
   OCT.15 TO APR.15 = 2.44               ARTR             463.50   519.59
   APR.15 TO JULY 1 = 5.08               OPPO              20.54    23.02
   JULY 1 TO SEPT.1 =  .74
   SEPT.1 TO OCT.15 = 1.24
   SEASON TOTAL     = 9.50
   LONG TERM AVERAGE= 8.20

                             TOTAL SHRUB PRODUCTION =  484.04   542.61


                                  TOTAL PRODUCTION =  540.76   606.20
                                  *********************************
  1017.   SHOS ANT11    22  AUGUST 1980      IN SE

                        NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
PLANT   PLANT   AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
CODE    NAME    PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                CENT    PLOT    GMS/10   /PLOT    COVER    ACRE    HA.
                COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                AREA    BASE             RENCES
                        10
*******************************************************************************
   6  SHRUBS
        ARTR     18.41     9.
        OPPO       .01     1.
   3  PER GRASS
        AGSM       .51     7.     5.25      .53     1.03    50.41     56.51
        BOGR      1.87     7.     5.61      .56      .30    53.87     60.39
        POSE       .62     6.     1.06      .11      .17    10.17     11.40
        SIHY       .10     1.      .46      .05      .46     4.41      4.94
        STCO       .03     1.      .27      .03      .90     2.59      2.90

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 121.45   136.15


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    ********************               *****************************
     OCT.15 TO APR.15 = 2.44             ARTR             463.50   519.59
     APR.15 TO JULY 1 = 5.08             OPPO              20.54    23.02
     JULY 1 TO SEPT.1 =  .74
     SEPT.1 TO OCT.15 = 1.24
     SEASON TOTAL     = 9.50
     LONG TERM AVERAGE= 8.20

                            TOTAL SHRUB PRODUCTION =  484.04   542.61


                                 TOTAL PRODUCTION =  605.49   678.76
                                 ********************************
  1017.    SHOS ANTIL     22  AUGUST 1980       IN SW

                           NUMBER OF PLOTS = 10
                           PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT    GMS/10   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           10
*****************************************************************************
   6  SHRUBS
        ARTR       9.63     7.
   3  PER GRASS
        AGSM        .44     9.     4.39      .44     1.00    42.15    47.25
        BOGR        .20     1.      .13      .01      .07     1.24     1.39
        POSE        .92     9.     1.58      .16      .17    15.17    17.01
        STCO        .06     2.      .30      .03      .38     2.88     3.23
                   TOTAL PERENNIAL GRASS PRODUCTION =        61.44    68.87
   2  PER FORBS
        SPCO        .03     1.
             PERENNIAL FORBS =      .13      .01      .43     1.24     1.39

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =             62.68    70.26


    PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                           AND WOODY MAT FORM PLANTS
   *********************                 *****************************
   OCT.15 TO APR.15 =  2.44               ARTR             463.50   519.59
   APR.15 TO JULY 1 =  5.08               OPPO              20.54    23.02
   JULY 1 TO SEPT.1 =   .74
   SEPT.1 TO OCT.15 =  1.24
   SEASON TOTAL     =  9.50
   LONG TERM AVERAGE=  8.20

                               TOTAL SHRUB PRODUCTION =  484.04   542.61


                                     TOTAL PRODUCTION =  546.72   612.88
                                     *******************************
  1017.   SHOS ANT11    22  AUGUST 1980      OUT NATIVE

                         NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
 PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA   BASE             RENCES
                          20
*******************************************************************************
   6  SHRUBS
        ARTR      13.13      9.
   3  PER GRASS
        AGSM        .36      9.     .25      .01      .03    1.20      1.35
        BOGR       6.30     17.   19.79      .99      .16   95.02    106.52
        POSE        .77     17.    3.70      .19      .24   17.76     19.91
        SIHY        .04      1.     .44      .02      .63    2.11      2.37
        STCO        .36      6.    3.70      .19      .51   17.76     19.91
                 TOTAL PERENNIAL GRASS PRODUCTION = 133.85   150.05
   2  PER FORBS
        SPCO        .07      9.
             PERENNIAL FORBS =     1.62      .08     1.16    7.77      8.71
   4  ANN FORBS
        PLPA        .01      1.
                ANNUAL FORBS =      .08      .00      .80     .38       .43

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 142.00   159.18


    PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                          AND WOODY MAT FORM PLANTS
   ********************                 *****************************
     OCT.15 TO APR.15 =   2.44            ARTR             169.04   189.50
     APR.15 TO JULY 1 =   5.08            OPPO               6.70     7.51
     JULY 1 TO SEPT.1 =    .74
     SEPT.1 TO OCT.15 =   1.24
     SEASON TOTAL     =   9.50
     LONG TERM AVERAGE=   8.20

                               TOTAL SHRUB PRODUCTION =  175.74   197.01


                                     TOTAL PRODUCTION =  317.74   356.19
                                     ********************************
    PRECIPITATION DATA
    RAIN GAUGE
   ********************
     OCT.15 TO APR.15 =
     APR.15 TO JULY 1 =
     JULY 1 TO SEPT.1 =
     SEPT.1 TO OCT.15 =
     SEASON TOTAL     =
     LONG TERM AVERAGE=
  2009.   SMILO          9    JULY 1980     IN NATIVE

                      NUMBER OF PLOTS = 20
                      PLOT SIZE 1X1
PLANT   PLANT   AVE.  1X1    TOTAL    AVE.    WGT./   LBS    KGS
CODE    NAME    PER-  ABS.   WGT.     WGT.    UNIT    PER    PER
                CENT  PLOT   GMS/20   /PLOT   COVER   ACRE   HA.
                COVER FREQ.  SQ.FT.   OCCUR-  AREA
                AREA  BASE            RENCES
                      20
*****************************************************************
  6  SHRUBS
       ARTR     16.51     14.
       OPPO       .22      1.
  3  PER GRASS
       AGSM       .27     14.    4.31     .22     .80  20.69   23.19
       BOGR       .14      5.     .64     .03     .23   3.07    3.44
       POSE      1.02     18.    2.09     .10     .10  10.03   11.24
       SIHY       .12      2.    1.61     .08     .67   7.73    8.67
       STCO       .14      2.     .80     .04     .29   3.84    4.30
                TOTAL PERENNIAL GRASS PRODUCTION =     45.36   50.85
  5  ANN GRASS
       BRTE       .03      4.
       VUOC       .05      8.
             ANNUAL GRASSES =     .23     .01     .14   1.10    1.23
  2  PER FORBS
       TRDU       .01      1.
           PERENNIAL FORBS =      .57     .03    2.85   2.73    3.06
  4  ANN FORBS
       GIPU       .06      4.
       LEDE       .01      1.
       PLPA       .44     16.
              ANNUAL FORBS =      .91     .05     .09   4.36    4.89

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  53.55   60.03


   PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                      AND WOODY MAT FORM PLANTS
  *********************            ******************************
   OCT.15 TO APR.15 =   3.32        ARTR            375.15  420.55
   APR.15 TO JULY 1 =   2.08        OPPO              9.06   10.15
   JULY 1 TO SEPT.1 =   1.68
   SEPT.1 TO OCT.15 =    .73
   SEASON TOTAL     =   7.81
   LONG TERM AVERAGE=   9.07

                         TOTAL SHRUB PRODUCTION =  384.21  430.70


                              TOTAL PRODUCTION =  437.76  490.73
                              **********************************
  2009.   SMILO              9    JULY 1980      OUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
*****************************************************************************
   6  SHRUBS
        ARTR      11.43     12.
        OPPO       1.15      2.
   3  PER GRASS
        AGSM       1.26     17.  17.44      .87      .69   83.74    93.87
        BOGR        .03      1.    .40      .02      .67    1.92     2.15
        POSE        .89     19.   3.21      .16      .18   15.41    17.27
        SIHY        .45      5.   1.85      .09      .21    8.88     9.95
        STCO       1.03      7.  11.71      .59      .57   56.22    63.02
                  TOTAL PERENNIAL GRASS PRODUCTION = 166.17   186.28
   5  ANN GRASS
        BRTE        .14      7.
        VUOC        .07      7.
               ANNUAL GRASSES =    .32      .02      .08    1.53     1.72
   4  ANN FORBS
        CHLE        .02      2.
        GIPU        .05      4.
        LARE        .01      1.
        LEDE        .01      2.
        PLPA       1.25     15.
                 ANNUAL FORBS =   4.39      .22      .17   21.07    23.62

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 188.77   211.61


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    ********************               ****************************
     OCT.15 TO APR.15 =    3.32          ARTR              257.91   289.12
     APR.15 TO JULY 1 =    2.08          OPPO               22.54    25.27
     JULY 1 TO SEPT.1 =    1.68
     SEPT.1 TO OCT.15 =     .73
     SEASON TOTAL     =    7.81
     LONG TERM AVERAGE=    9.07

                           TOTAL SHRUB PRODUCTION =  280.45   314.39


                                TOTAL PRODUCTION =  469.22   526.00
                                **********************************
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```
 2009.   SMILO               9    JULY 1980      IN SPRAY

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1      TOTAL     AVE.     WGT./    LBS    KGS
CODE     NAME      PER-    ABS.     WGT.      WGT.     UNIT     PER    PER
                   CENT    PLOT     GMS/20    /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.    SQ.FT.    OCCUR-   AREA
                   AREA    BASE               RENCES
                           20
*****************************************************************************
   6  SHRUBS
        ARTR       6.39       5.
        OPPO        .10       1.
   3  PER GRASS
        AGSM       1.38      16.   30.01     1.50     1.09 144.09   161.52
        POSE        .50       9.    1.76      .09      .18   8.45     9.47
        SIHY        .10       2.    1.51      .08      .79   7.25     8.13
        STCO        .12       1.     .82      .04      .36   3.93     4.41
                TOTAL PERENNIAL GRASS PRODUCTION = 163.72   183.53
   5  ANN GRASS
        BRTE       4.93      20.
        VUOC        .95      13.
               ANNUAL GRASSES =  33.71     1.69      .29 161.86   181.45
   4  ANN FORBS
        DEPI        .01       1.
        LEDE        .02       1.
        PLPA        .91      10.
                  ANNUAL FORBS =  4.12      .21      .22  19.78    22.17

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 345.36   387.15


   PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                          AND WOODY MAT FORM PLANTS
  *********************                *****************************
   OCT.15 TO APR.15 =    3.32            ARTR               98.88   110.85
   APR.15 TO JULY 1 =    2.08            OPPO               13.90    15.58
   JULY 1 TO SEPT.1 =    1.68
   SEPT.1 TO OCT.15 =     .73
   SEASON TOTAL     =    7.81
   LONG TERM AVERAGE=    9.07

                         TOTAL SHRUB PRODUCTION =  112.78   126.43


                              TOTAL PRODUCTION =  458.14   513.58
                              *********************************
  2009.   SMILO           9    JULY 1980      OUT SPRAY

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT     AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME      PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                    CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                    COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                    AREA    BASE             RENCES
                            20
*******************************************************************************
    6  SHRUBS
         OPPO          .12      1.
    3  PER GRASS
         AGSM         1.98     19.   63.61    3.18     1.61 305.43   342.39
         POSE          .54     11.    2.67     .13      .25  12.82    14.37
         SIHY          .23      1.     .89     .04      .20   4.27     4.79
         STCO          .06      1.     .51     .03      .43   2.44     2.74
                    TOTAL PERENNIAL GRASS PRODUCTION = 324.96   364.28
    5  ANN GRASS
         BRTE         5.66     19.
         VUOC          .63     16.
                 ANNUAL GRASSES =  47.06    2.35      .37 225.96   253.30
    2  PER FORBS
         ERPU          .01      1.
               PERENNIAL FORBS =     .04     .00      .40    .19      .21
    4  ANN FORBS
         CHLE          .06      3.
         GIPU          .03      2.
         LARE          .05      5.
         LEDE          .02      2.
         PLPA         1.61     13.
                    ANNUAL FORBS =  6.26     .31      .18  30.05    33.69

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 581.16   651.48


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    *********************              *****************************
     OCT.15 TO APR.15 =      3.32        ARTR               15.45    17.32
     APR.15 TO JULY 1 =      2.08        OPPO               10.86    12.17
     JULY 1 TO SEPT.1 =      1.68
     SEPT.1 TO OCT.15 =       .73
     SEASON TOTAL     =      7.81
     LONG TERM AVERAGE=      9.07

                         TOTAL SHRUB PRODUCTION =   26.31    29.50


                              TOTAL PRODUCTION =  607.47   680.98
                              *********************************
```

~~1005.~~ SWEETWATER 2 AUGUST 1980 IN ARNO

(1006)?

```
                              NUMBER OF PLOTS = 20
                                PLOT SIZE 1X1
PLANT    PLANT     AVE.     1X1      TOTAL     AVE.     WGT./     LBS      KGS
CODE     NAME      PER-     ABS.     WGT.      WGT.     UNIT      PER      PER
                   CENT     PLOT     GMS/20    /PLOT    COVER     ACRE     HA.
                   COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                   AREA     BASE               RENCES
                            20
**********************************************************************
   6  SHRUBS
        ASSP        1.30       2.
        ARHO         .10       1.
        ARNO        6.92      10.
        ARTR         .05       1.
        PHHO        1.08       5.
        TECA        2.01       7.
   3  PER GRASS
        AGSM         .46       9.     5.79       .29       .63    27.80     31.16
        CAFI         .21       1.      .72       .04       .18     3.45      3.87
        KOCR         .39       6.     4.14       .21       .54    19.87     22.27
        ORHY         .28       6.     2.71       .14       .49    13.01     14.58
        POSE         .05       1.      .24       .01       .27     1.15      1.29
        STCO         .42       8.     3.27       .16       .39    15.70     17.60
                   TOTAL PERENNIAL GRASS PRODUCTION =              80.98     90.78
   2  PER FORBS
        COPA         .38      14.
        LEAL         .01       2.
               PERENNIAL FORBS =     18.91       .95      2.42    90.79    101.78
   4  ANN FORBS
        CHE          .01       1.
                  ANNUAL FORBS =       .01       .00       .10      .04       .04

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =              171.81    192.60


     PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                           AND WOODY MAT FORM PLANTS
    ********************                  ******************************
     OCT.15 TO APR.15 =     3.18             ARFR                 .06       .07
     APR.15 TO JULY 1 =     2.03             ARNO              138.95    155.77
     JULY 1 TO SEPT.1 =      .90             ARTR               13.39     15.00
     SEPT.1 TO OCT.15 =     1.75             CHVI                3.15      3.53
     SEASON TOTAL     =     7.86             OPPO                2.26      2.54
     LONG TERM AVERAGE=     8.88             PHHO                3.60      4.03
                                             TECA               12.01     13.46

                               TOTAL SHRUB PRODUCTION =        173.42    194.40


                                     TOTAL PRODUCTION =        345.23    387.00
                                     ***********************************
   1005.   SWEETWATER      2  AUGUST 1980      OUT ARNO

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA   BASE             RENCES
                          20
*************************************************************************
   6  SHRUBS
        ARNO      11.75      7.
        ARTR       8.30      3.
        OPPO        .20      1.
        PHHO        .22      2.
        TECA        .20      1.
   3  PER GRASS
        AGSM        .14      9.    2.82      .14     1.04   13.54    15.18
        CAEL        .17      6.     .89      .04      .26    4.27     4.79
        CAFI        .31      5.    2.14      .11      .35   10.27    11.51
        KOCR        .62      9.    4.43      .22      .36   21.27    23.84
        ORHY        .13      5.    1.83      .09      .73    8.78     9.84
        POSE        .02      1.     .04      .00      .13     .19      .21
        STCO       1.79     13.   17.08      .85      .48   82.01    91.93
                  TOTAL PERENNIAL GRASS PRODUCTION = 140.33   157.31
   2  PER FORBS
        COPA        .03      2.
        CRFL        .02      1.
        CYMO        .02      2.
        LEAL        .01      1.
        PSTE        .21     10.
             PERENNIAL FORBS =     9.28      .46     1.63   44.55    49.94

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 184.88   207.25


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   ********************                ******************************
    OCT.15 TO APR.15 =  3.18             ARFR              1.33     1.49
    APR.15 TO JULY 1 =  2.03             ARNO            126.88   142.23
    JULY 1 TO SEPT.1 =   .90             ARTR              7.82     8.76
    SEPT.1 TO OCT.15 =  1.75             CHVI              4.84     5.43
    SEASON TOTAL     =  7.86             LEPU              1.28     1.43
    LONG TERM AVERAGE=  8.88             TECA              8.05     9.03

                             TOTAL SHRUB PRODUCTION =  150.20   168.37


                                   TOTAL PRODUCTION =  335.08   375.62
                                   ******************************
   1005.   SWEETWATER      2  AUGUST 1980       IN ARTR

                          NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT   PLANT    AVE.    1X1     TOTAL     AVE.    WGT./    LBS     KGS
 CODE    NAME     PER-    ABS.    WGT.      WGT.    UNIT     PER     PER
                  CENT    PLOT    GMS/20    /PLOT   COVER    ACRE    HA.
                  COVER   FREQ.   SQ.FT.    OCCUR-  AREA
                  AREA    BASE              RENCES
                          20
*************************************************************************
   6  SHRUBS
        ARFR         .35      1.
        ARHO         .12      1.
        ARTR        1.79      4.
        CHNA         .20      1.
        CHVI         .93      6.
        EROV         .04      1.
        LEPU         .43      3.
        PHHO        1.41      4.
        TECA         .02      2.
   3  PER GRASS
        AGSM         .23     10.     3.62      .18      .79   17.38    19.48
        CAEL         .08      5.      .38      .02      .24    1.82     2.04
        CAFI         .79     10.     2.95      .15      .19   14.16    15.87
        KOCR         .60     12.     4.73      .24      .39   22.71    25.46
        POSE         .07      2.      .09      .00      .07     .43      .48
        STCO        3.00     19.    34.38     1.72      .57  165.08   185.05
                  TOTAL PERENNIAL GRASS PRODUCTION = 221.58   248.39
   2  PER FORBS
        ARHO2        .01      1.
        ASMI         .26      3.
        CRBR         .17      2.
        ERPU         .05      1.
        PSTE         .12      3.
        VINU         .02      2.
              PERENNIAL FORBS =    16.26      .81     1.28   78.07    87.52

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 299.65   335.91


     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
    *******************                  *****************************
     OCT.15 TO APR.15 = 3.18               ARHO              1.43     1.60
     APR.15 TO JULY 1 = 2.03               ARTR            144.88   162.41
     JULY 1 TO SEPT.1 =  .90               CHVI             19.50    21.85
     SEPT.1 TO OCT.15 = 1.75               EROV               .18      .21
     SEASON TOTAL     = 7.86               LEPU              6.15     6.89
     LONG TERM AVERAGE= 8.88               PHHO             15.72    17.62
                                           TECA               .38      .42

                             TOTAL SHRUB PRODUCTION =  188.23   211.00


                                   TOTAL PRODUCTION =  487.88   546.91
                                  **********************************
 1005.   SWEETWATER      2  AUGUST 1980      OUT ARTR

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1      TOTAL     AVE.     WGT./    LBS      KGS
CODE     NAME     PER-    ABS.     WGT.      WGT.     UNIT     PER      PER
                  CENT    PLOT     GMS/20    /PLOT    COVER    ACRE     HA.
                  COVER   FREQ.    SQ.FT.    OCCUR-   AREA
                  AREA    BASE               RENCES
                          20
*******************************************************************************
    6  SHRUBS
         ARTR      7.88      7.
         CHVI       .32      6.
         EROV       .13      1.
         OPPO       .04      2.
         PHHO       .18      5.
    3  PER GRASS
         AGSM      1.32     16.     9.88       .49       .38   47.44     53.18
         CAEL       .30      4.     2.08       .10       .35    9.98     11.19
         CAFI      3.66     16.    15.78       .79       .22   75.77     84.94
         KOCR       .36      7.     3.18       .16       .45   15.26     17.11
         POSE       .11      5.      .22       .01       .10    1.05      1.18
         STCO       .88     14.     9.38       .47       .53   45.03     50.48
                  TOTAL PERENNIAL GRASS PRODUCTION =  194.53    218.07
    2  PER FORBS
         ASMI       .13      1.
         PECL       .07      1.
              PERENNIAL FORBS =     1.66       .08       .44    7.97      8.93

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  202.50    227.00


      PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                        AND WOODY MAT FORM PLANTS
     ********************               ******************************
      OCT.15 TO APR.15 = 3.18              ARHO                .37      .42
      APR.15 TO JULY 1 = 2.03              ARTR             221.92   248.77
      JULY 1 TO SEPT.1 =  .90              CHVI              19.79    22.19
      SEPT.1 TO OCT.15 = 1.75              PHHO               8.45     9.47
      SEASON TOTAL     = 7.86
      LONG TERM AVERAGE= 8.88

                             TOTAL SHRUB PRODUCTION =  250.54   280.85


                                   TOTAL PRODUCTION =  453.04   507.85
                                   ********************************
 2010.   TWO MILE H      8    JULY 1980      IN NATIVE

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X10
PLANT    PLANT     AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
CODE     NAME      PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
******************************************************************************
   6  SHRUBS
         ATGA       2.82     20.   25.10     1.25     .04  120.51   135.09
         OPPO        .08      1.
   3  PER GRASS
         AGCR        .12     10.   10.21      .51     .43   49.03    54.96
         AGSM        .03      3.     .32      .02     .05    1.55     1.74
         ORHY        .00      1.     .06      .00     .12     .29      .33
         POSE        .57     19.    3.59      .18     .03   17.25    19.34
         SIHY        .19     18.    6.39      .32     .16   30.70    34.41
                   TOTAL PERENNIAL GRASS PRODUCTION =       98.82   110.78
   2  PER FORBS
         ALTE        .00      1.
         AST         .00      2.
         CYMO        .01      6.
         ERPU        .00      1.
         TROU        .00      1.
              PERENNIAL FORBS =      .18      .01     .06     .85      .95
   4  ANN FORBS
         CAMI        .01      3.
         DEPI        .00      4.
         LARE        .00      5.
                   ANNUAL FORBS =    .15      .01     .06     .71      .80

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 220.89   247.62


    PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                      AND WOODY MAT FORM PLANTS
   *********************            *****************************
   OCT.15 TO APR.15 =  3.85           ARTR               18.19    20.39
   APR.15 TO JULY 1 =  2.30           PHHO                 .22      .25
   JULY 1 TO SEPT.1 =  1.56
   SEPT.1 TO OCT.15 =   .89
   SEASON TOTAL     =  8.60
   LONG TERM AVERAGE=  9.47

                      TOTAL SHRUB PRODUCTION =   18.41    20.64


                          TOTAL PRODUCTION =  239.30   268.25
                          *********************************
 2010.   TWO MILE H      8    JULY 1980      OUT NATIVE

                  NUMBER OF PLOTS = 20
                   PLOT SIZE 1X10
PLANT   PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
CODE    NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                 CENT    PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                 COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                 AREA    BASE             RENCES
                         20
*************************************************************************
   6  SHRUBS
        ARTR      1.45      4.
        ATGA      4.17     19.   35.27     1.76      .04 169.35  189.84
        MAGL       .00      1.
        PHHO       .16      5.
   3  PER GRASS
        AGSM       .10      4.     .93      .05      .05   4.44    4.98
        POSE       .13     15.     .58      .03      .02   2.80    3.14
        SIHY       .00      4.     .10      .01      .10    .48     .54
                 TOTAL PERENNIAL GRASS PRODUCTION =        7.72    8.65
   2  PER FORBS
        LASC       .03      3.
        MACA       .00      1.
              PERENNIAL FORBS =   1.60      .08      .25   7.68    8.61
   4  ANN FORBS
        LARE       .00      3.
                ANNUAL FORBS =     .02      .00      .05    .09     .10

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 184.84  207.21


     PRECIPITATION DATA
     RAIN GAUGE
  ********************
     OCT.15 TO APR.15 =  3.85
     APR.15 TO JULY 1 =  2.30
     JULY 1 TO SEPT.1 =  1.56
     SEPT.1 TO OCT.15 =   .89
     SEASON TOTAL     =  8.60
     LONG TERM AVERAGE=  9.47
   1006.   UPPER GOVT      1  AUGUST 1980      IN NATIVE

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
 PLANT   PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE    NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
**********************************************************************
   6  SHRUBS
        ANDI        .02      1.
        ARTR       6.08     10.
        PHHO        .79     15.
   3  PER GRASS
        AGSM       1.09     20.  27.97    1.40     1.28 134.30   150.55
        KOCR       2.56     15.  23.43    1.17      .46 112.50   126.11
        POSE       2.74     19.   9.70     .48      .18  46.57    52.20
                  TOTAL PERENNIAL GRASS PRODUCTION = 293.37   328.87
   2  PER FORBS
        APHO2       .01      1.
        CRAC        .08      6.
        ERPU        .01      1.
        LOOR        .02      3.
        VIAM        .01      1.
        VINU        .02      2.
              PERENNIAL FORBS =     .57     .03      .23    2.73     3.06
   4  ANN FORBS
        PLPA        .04      3.
                 ANNUAL FORBS =     .05     .00      .06     .24      .27

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 296.34   332.20


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   ********************                ****************************
    OCT.15 TO APR.15 =  3.47             ARTR           185.52  207.96
    APR.15 TO JULY 1 =  4.09             OPPO             4.97    5.57
    JULY 1 TO SEPT.1 =   .51             PHHO            11.02   12.35
    SEPT.1 TO OCT.15 =   .90
    SEASON TOTAL     =  8.97
    LONG TERM AVERAGE=  9.25

                           TOTAL SHRUB PRODUCTION =  201.51  225.89


                                TOTAL PRODUCTION =  497.85  558.09
                                **********************************
 1006.   UPPER GOVT      1  AUGUST 1980     CUT NATIVE

                          NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
PLANT    PLANT     AVE.    1X1      TOTAL    AVE.    WGT./    LBS     KGS
CODE     NAME      PER-    ABS.     WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT     GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.    SQ.FT.   OCCUR-  AREA
                   AREA    BASE              RENCES
                           20
*******************************************************************************
   6  SHRUBS
        ARTR        6.58    10.
        OPPO         .01     1.
        PHHO         .98    10.
   3  PER GRASS
        AGSM        1.07    19.  11.41      .57     .54   54.78    61.41
        KOCR        1.09    12.   5.23      .26     .24   25.11    28.15
        POSE        2.93    19.   7.56      .38     .13   36.30    40.69
                  TOTAL PERENNIAL GRASS PRODUCTION =  116.19   130.25
   2  PER FORBS
        CRAC         .02     2.
        ERPU         .01     1.
        LEAL         .02     1.
        MACA         .02     2.
        SPCO         .12     9.
        VINU         .01     1.
              PERENNIAL FORBS =   2.18      .11     .59   10.46    11.73
   4  ANN FORBS
        PLPA         .23    11.
                 ANNUAL FORBS =    .68      .03     .15    3.26     3.65

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 129.91   145.63


   PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *******************                 ******************************
  OCT.15 TO APR.15 =  3.47              ARTR             177.17   198.60
  APR.15 TO JULY 1 =  4.09              OPPO              16.81    18.84
  JULY 1 TO SEPT.1 =   .51              PHHO              10.53    11.80
  SEPT.1 TO OCT.15 =   .90              XASA               1.67     1.87
  SEASON TOTAL     =  8.97
  LONG TERM AVERAGE=  9.25

                            TOTAL SHRUB PRODUCTION =  206.16   231.11


                                   TOTAL PRODUCTION =  336.07   376.74
                                   ********************************
   1006.   UPPER GOVT      1  AUGUST 1980      IN SPRAY

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
*************************************************************************
   6  SHRUBS
        ARTR        2.32      5.
        OPPO         .50      1.
   3  PER GRASS
        AGCR         .14      2.    4.91     .25    1.75   23.57    26.42
        AGSM        1.51     18.   46.02    2.30    1.52  220.97   247.71
        KOCR        2.62     17.   29.50    1.48     .56  141.64   158.78
        POSE        1.32     20.    5.36     .27     .20   25.73    28.84
        STCO         .47      7.    9.45     .47    1.01   45.37    50.86
                   TOTAL PERENNIAL GRASS PRODUCTION =  457.28   512.61
   5  ANN GRASS
        BRTE         .08      9.
                 ANNUAL GRASSES =    .25     .01     .16    1.20     1.35
   2  PER FORBS
        ALTE         .01      1.
        LOOR         .02      2.
        TROU         .08      5.
                PERENNIAL FORBS =   5.32     .27    2.80   25.54    28.63
   4  ANN FORBS
        GIPU         .15     15.
        LARE         .03      1.
                   ANNUAL FORBS =    .60     .03     .16    2.88     3.23

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  486.90   545.81


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    ********************              *****************************
     OCT.15 TO APR.15 =  3.47           ARTR             74.83    83.89
     APR.15 TO JULY 1 =  4.09           OPPO              5.60     6.27
     JULY 1 TO SEPT.1 =   .51           PHHO               .96     1.08
     SEPT.1 TO OCT.15 =   .90
     SEASON TOTAL     =  8.97
     LONG TERM AVERAGE=  9.25

                          TOTAL SHRUB PRODUCTION =    81.39    91.24


                               TOTAL PRODUCTION =  568.29  637.05
                               **********************************
```

```
  1006.     UPPER GOVT    1  AUGUST 1980     CUT SPRAY

                    NUMBER OF PLOTS = 20
                      PLOT SIZE 1X1
PLANT   PLANT  AVE.   1X1   TOTAL   AVE.  WGT./  LBS   KGS
CODE    NAME   PER-   ABS.  WGT.    WGT.  UNIT   PER   PER
               CENT   PLOT  GMS/20  /PLOT COVER  ACRE  HA.
               COVER  FREQ. SQ.FT.  OCCUR- AREA
               AREA   BASE          RENCES
                      20
*****************************************************************
   6  SHRUBS
        ARTR     4.13    16.
        OPPO     1.23     2.
        PHHO      .29     2.
   3  PER GRASS
        AGSM     1.39    20. 18.48   .92    .67 88.73   99.47
        KOCR     1.45    13. 15.29   .76    .53 73.41   82.29
        POSE     2.56    20.  5.45   .27    .11 26.16   29.33
        STCO      .16     3.  1.15   .06    .32  5.52    6.19
               TOTAL PERENNIAL GRASS PRODUCTION = 193.82  217.27
   2  PER FORBS
        ERPU      .03     2.
        SPCO      .02     2.
            PERENNIAL FORBS =    .16   .01    .18    .76     .85
   4  ANN FORBS
        GIPU      .02     2.
        LISE      .02     2.
        PLPA      .51    15.
              ANNUAL FORBS =  2.14   .11    .19 10.27   11.51

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 204.85  229.64


     PRECIPITATION DATA          PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                  AND WOODY MAT FORM PLANTS
   ********************          ****************************
    OCT.15 TO APR.15 = 3.47        ARTR         339.84 380.96
    APR.15 TO JULY 1 = 4.09        OPPO            .54    .61
    JULY 1 TO SEPT.1 =  .51        PHHO           4.88   5.47
    SEPT.1 TO OCT.15 =  .90        XASA            .16    .18
    SEASON TOTAL     = 8.97
    LONG TERM AVERAGE= 9.25

                        TOTAL SHRUB PRODUCTION =  345.41  387.21


                             TOTAL PRODUCTION =  550.26  616.85
                             *******************************
```

```
 2006.   WEST PAST      6    JULY 1980     IN NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X10
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                 CENT   PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
**************************************************************************
  6  SHRUBS
       ARPE        .67     8.
       ARSP       4.87    20.
       ATGA       4.86    20.   26.81     1.34     .03 128.70  144.27
       OPPO        .99    15.
  3  PER GRASS
       BOGR        .04     4.     .52      .03     .07   2.51    2.81
       ORHY        .60    20.   12.04      .60     .10  57.80   64.79
       POSE        .30    17.     .96      .05     .02   4.60    5.16
       SIHY        .26    20.    9.41      .47     .18  45.17   50.64
       SPCR        .03     8.     .55      .03     .09   2.62    2.94
                 TOTAL PERENNIAL GRASS PRODUCTION = 112.70  126.34
  2  PER FORBS
       ALTE        .03    17.
       AST         .00     2.
       MACA        .00     4.
       MUDI        .09    18.
              PERENNIAL FORBS =  1.07      .05     .04   5.12    5.74
  4  ANN FORBS
       CHLE        .00     1.
       DEPI        .00     1.
       EUSE        .05    17.
       LARE        .07    18.
       LEDF        .00     5.
       MATA        .01     6.
       PLPA        .14    19.
                ANNUAL FORBS =   4.22      .21     .08  20.27   22.72

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 266.79  299.07


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  *********************               ******************************
   OCT.15 TO APR.15 =   .78             ARPE             39.34   44.10
   APR.15 TO JULY 1 =  4.70             ARSP             35.48   39.77
   JULY 1 TO SEPT.1 =   .99             OPPO             22.95   25.72
   SEPT.1 TO OCT.15 =   .86
   SEASON TOTAL     =  7.33
   LONG TERM AVERAGE=  5.71

                          TOTAL SHRUB PRODUCTION =   97.76  109.59


                               TOTAL PRODUCTION =  364.55  408.66
                               ***********************************
  2006.   WEST PAST        6    JULY 1980      OUT NATIVE

                          NUMBER OF PLOTS = 20
                          PLOT SIZE 1X10
PLANT   PLANT    AVE.     1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE    NAME     PER-     ABS.    WGT.     WGT.    UNIT     PER    PER
                 CENT     PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER    FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA     BASE             RENCES
                          20
*************************************************************************
   6  SHRUBS
       ARPE        8.57     20.
       ARSP         .99      4.
       ATGA         .79     19.     5.82     .29      .04  27.94    31.32
       OPPO         .99     12.
   3  PER GRASS
       AGCR         .00      4.      .03     .00      .06    .12      .13
       OPHY         .20     18.     3.39     .17      .09  16.25    18.22
       POSE         .06     10.      .16     .01      .01    .76      .85
       SIHY         .09     15.     2.78     .14      .15  13.35    14.97
       SPCR         .02      5.      .13     .01      .04    .64      .72
                 TOTAL PERENNIAL GRASS PRODUCTION =        31.12    34.89
   2  PER FORBS
       ALTE         .00      4.
       AST          .00      5.
       MACA         .00      1.
       MUDI         .03     16.
             PERENNIAL FORBS =       .35     .02      .05   1.70     1.91
   4  ANN FORBS
       CHLE         .00      1.
       GIPU         .00      2.
       LARE         .02      6.
       LEDE         .01      8.
       MATA         .00      4.
       PLPA         .05     12.
                ANNUAL FORBS =       .55     .03      .03   2.64     2.96

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  63.40    71.07


   PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  ********************               ******************************
   OCT.15 TO APR.15 =  .78            ARPE            115.40  129.36
   APR.15 TO JULY 1 = 4.70            ARSP              2.97    3.33
   JULY 1 TO SEPT.1 =  .99            OPPO             13.04   14.62
   SEPT.1 TO OCT.15 =  .86
   SEASON TOTAL     = 7.33
   LONG TERM AVERAGE= 5.71

                        TOTAL SHRUB PRODUCTION =  131.41  147.32


                            TOTAL PRODUCTION =  194.81  218.39
                            **********************************
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shrub

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